AD-A212 104

DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION Unclassified	1b. RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; Distribution unlimited
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S) 25-89	5. MONITORING ORGANIZATION REPORT NUMBER(S)
6a. NAME OF PERFORMING ORGANIZATION US Army–Baylor University Graduate Program in Health Care 6b. OFFICE SYMBOL (If applicable) Admin/HSHA–IHC	7a. NAME OF MONITORING ORGANIZATION
6c. ADDRESS (City, State, and ZIP Code) Ft. Sam Houston, TX 78234–6100	7b. ADDRESS (City, State, and ZIP Code)
8a. NAME OF FUNDING/SPONSORING ORGANIZATION 8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c. ADDRESS (City, State, and ZIP Code)	10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. / PROJECT NO. / TASK NO. / WORK UNIT ACCESSION NO.

11. TITLE (Include Security Classification)
MARKET ASSESSMENT OF BROOKE army MEDICAL CENTER -- A STRATEGY FOR TODAY AND THE FUTURE

12. PERSONAL AUTHOR(S)
CPT John K. Evans

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT
Study	FROM Jul 85 TO Jul 86	Aug 85	190

16. SUPPLEMENTARY NOTATION

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	Health Care, Hospital Marketing

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

This study was conducted to determine the perceived ambulatory health care needs of the Army retired population in the Brooke Army Medical Center immediate service area as a basis for developing a marketing strategy. The Army retired population was surveyed to assess their perceptions on ambulatory health care needs, satisfaction, and familiarity levels. Based on the survey outcomes, the author developed and presented a detailed marketing plan.

Original contains color plates: All DTIC reproductions will be in black and white

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT	21. ABSTRACT SECURITY CLASSIFICATION
☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS	
22a. NAME OF RESPONSIBLE INDIVIDUAL Lawrence M. Leahy, MAJ, MS	22b. TELEPHONE (Include Area Code) (512) 221-6345/2324
	22c. OFFICE SYMBOL HSHA-IHC

DD Form 1473, JUN 86 — Previous editions are obsolete. — SECURITY CLASSIFICATION OF THIS PAGE

MARKET ASSESSMENT OF BROOKE ARMY MEDICAL CENTER--
A STRATEGY FOR TODAY AND THE FUTURE

A Graduate Research Project

Submitted to the Faculty of

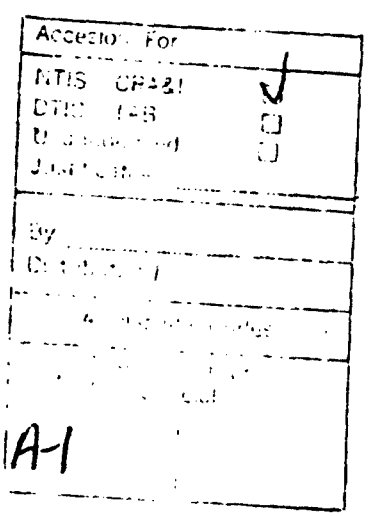
Baylor University

In Partial Fulfillment of the

Requirements for the Degree

of

Master of Health Administration



By

Captain John K. Evans, MS

August 1985

ACKNOWLEDGMENTS

It is with heartfelt appreciation that I wish to recognize and thank my wife Ellen and my son Dana, who have endured the academic and residency process at my side, always providing encouragement, understanding, and support.

I would also like to thank those individuals with whom I was closely involved while researching this paper. To Captain Paul Robertus, I am most indebted for his tireless energies and assistance in formulating software programs and transposing survey data into workable results. To Specialists Steinborn, Newham, Johnson, and Kosnikowski, I owe a special thanks for devoting their last days on active duty to this undertaking.

This graduate research project has also benefited from the encouragement and flexibility of both my reader, Major Don A. Kreiger, and my preceptor, Colonel James B. Stubblefield. They and other members of the faculty have continually provided me with support, a sense of humor, and helpful advice throughout the residency process.

Lastly, and with greatest appreciation, I thank (Mrs.) Barbara Jones, who for the past two years has provided valuable skills and patience in the editing and typing of this study and many other academic works.

TABLE OF CONTENTS

CHAPTER I

INTRODUCTION

> To hospital administrators, the word "marketing" traditionally evoked images of fast talking hucksters and sinister manipulation of consumer behavior, but now marketing is seen as a necessary tool for developing viable programs and increasing public awareness of the hospital's services.[1]

This statement was made in 1981 by William Pierskalla, Executive Director of the National Health Management Center at the University of Pennsylvania's Wharton School. At the time, health care marketing management had undergone a philosophical transition from a service/provider concept to a more market/consumer-oriented concept. Mr. Pierskalla went on to address the future of this issue by predicting that 15 percent of the nation's hospitals would close by 1990 unless they developed "survival techniques" called marketing strategies.[2] Today, strategic marketing is an important element of the formal planning process in most civilian health care delivery systems. It is depicted in many forms, from the proliferation of "brand name" emergicenters to the discount price strategies employed in preferred provider contracts.

Several reasons exist for the rising levels of interest in health care marketing as a "survival technique." Marketing can provide concepts and techniques for smoothing irregular demand patterns, reviewing consumer needs, identifying and reaching target markets, and measuring customer satisfaction. As a result, it may be useful in increasing levels of utilization without creating demand for unneeded services.

By measuring total demand, assessing the level and the quality of services offered by other providers, and determining those services which should be offered to meet the needs of the markets served by the organization, hospital leadership can make more informed decisions concerning the duplication of services. Marketing, with its emphasis on exchange relationships with key publics, can provide an approach that recognizes staff contributions and boosts the hospitals' image with the public. Community and preventive health services possess characteristics which are amenable to marketing efforts that can increase consumer awareness as well as have a long-term effect on the overall costs of health care. The expectation levels of consumers are rising, and increased measures are being taken to curb liability trends and focus more on quality assurance and risk management. Marketing can provide the measurement techniques needed to determine patient expectation and satisfaction levels. Finally, marketing may be useful in effecting current methods and techniques designed to implement cost-containment measures.[3]

The complexity and the importance of these issues vary in significance and intensity among health care organizations, whether the orientation be for-profit, not-for-profit, secular, or governmental. Within this dynamic environment, marketing thinking and marketing practices have been assuming greater significance because of marketing's potential to impact positively on these factors in either an independent or a collective fashion. If properly applied, marketing can guide a health care organization in adopting and implementing strategic plans to accomplish its objectives and provide for greater success in the future.

Conditions Which Prompted the Study

Strategic marketing is a balanced mix of marketing information and marketing research which is tailored to the objectives of an institution. Marketing information can be divided into internal data (about the hospital itself) and external data, which concentrate on the hospital's competition, the market, and the general environment in which it operates. Market research is original, objective, systematized research which is used in complement with the market information by obtaining data concerning consumer perceptions, preferences, usage patterns, and demand potential.[4]

Brooke Army Medical Center (BAMC) is an institution which has recently received congressional approval for the construction of a new facility. Within the next year, serious consideration will be given to determining the exact bed size of the new hospital. At the same time, the hospital's census has been decreasing at an increasing rate (from 81 percent in 1979 to 70 percent in 1983 and 1984). Total 1984 clinic visits were 5.5 percent lower than the previous year, and CHAMPUS (Civilian Health and Medical Program of the Uniformed Services) costs to the government for patients seeking outpatient and inpatient care at other health care institutions in San Antonio are $6.9 million for all services ($2.2 million for outpatient care and $4.7 million for inpatient care).

Additionally, BAMC and other military medical treatment facilities have been the subject of adverse media coverage of quality health care issues. News reports have appeared on television and in major newspapers which are certainly not improving the image of institutions

such as BAMC.

An accurate picture of the user and the nonuser patient population's preferences for hospitalization, perceived needs, levels of satisfaction and familiarity with services, potential demand, and usage patterns could play an important part together with marketing information in determining the scope of services which could be supported by that population. Because the vast majority of persons requiring health care in a population receive that care in outpatient settings and because the outpatient clinic serves as an entrance point for most episodic services, the outpatient arena is the perfect area in which to concentrate strategic marketing efforts.

It was within the context which these conditions evoke and under the guidance of the hospital's current leadership that the intent of this study was to (1) identify the beneficiary population's perceived levels of need for and satisfaction and familiarity with outpatient services, (2) make recommendations concerning the alteration of outpatient services/programs to meet consumer need and satisfaction, and (3) formulate a marketing plan which could be utilized to increase beneficiary familiarity with outpatient services. The product of these three initiatives was a marketing strategy which potentially could be used to enhance both consumer loyalty and use of and support for a health care institution.

Statement of the Research Problem

The intent of this study was to determine the perceived ambulatory health care needs of the Army retired population in the Brooke

Army Medical Center immediate service area as a basis for developing a marketing strategy.

Objectives

The objectives of this research were to:

1. Review the literature concerning marketing ambulatory services.
2. Study the marketing approaches to ambulatory care which presently exist at hospitals in the Greater San Antonio area.
3. Obtain internal marketing information concerning the ambulatory services at BAMC and external marketing information concerning the service area.
4. Assess the Army retired population's perceived need for and familiarity with ambulatory services and programs available at BAMC by:
   a. Determining the minimum sample size required to make inferences about the service area population as a whole.
   b. Developing and distributing a questionnaire to the entire service area population.
   c. Collecting all the questionnaires received from the service area in order to make inferences about the entire population as well as about subgroups of that population which warrant individual study.
   d. Collating the data obtained from the questionnaire.
5. Utilizing appropriate statistical techniques, establish levels of perceived need (in conjunction with BAMC management) which, if exceeded, would result in recommendations to alter specific services/programs. For the purposes of this study, need is defined as the usage of needed outpatient services from sources other than BAMC.

6. Utilizing appropriate statistical technique, establish levels of dissatisfaction with services (in conjunction with BAMC management) which, if exceeded, would result in recommendations to alter specific services/programs.
7. Utilizing appropriate statistical techniques, establish levels of unfamiliarity with services/programs (in conjunction with BAMC management) which, if exceeded, would result in recommendations to familiarize the population with existing and future services/programs.
8. Develop a marketing strategy for ambulatory services which encompasses (a) available internal and external marketing information and (b) recommendations made concerning the alteration of specific services/programs and the familiarization of the population with existing and future services/programs.

Criteria

The criteria of this research include the following:

1. The need to effect change in services and/or programs was determined by exceeding a preset percentage level established by BAMC managers as to the needs level regarding services/programs.
2. The need to effect change in services and/or programs was determined by exceeding a preset percentage level established by BAMC managers as to the dissatisfaction levels regarding services/programs.
3. The need to effect the population's familiarity with services/programs was determined by exceeding a preset percentage level established by BAMC managers as to the unfamiliarity level regarding services/programs.

4. A statistical analysis was performed at the .01 level of significance.
5. The recommendations contained within the marketing strategy for altering services/programs and familiarizing the population with services/programs are in consonance with the established goals/objectives of BAMC.

Assumptions

For the purposes of this research, it was assumed that:

1. The BAMC managers were desirous of knowing the potential for increasing present utilization of outpatient services by improving the beneficiary population's familiarity with services/programs and/or altering present services/programs to meet perceived levels of need.
2. The resources to conduct the study would be available.
3. The BAMC managers selected to establish levels of need for and satisfaction and familiarity with services were representative of the command's decision-makers in terms of ambulatory services.
4. The levels of need for and satisfaction and familiarity with services could be established by BAMC managers utilizing the Delphi technique.
5. The services/programs of BAMC outpatient areas would remain constant during the course of the study.
6. The individuals responding to the survey would be concerned with and interested in the provision of outpatient health care services at BAMC.

7. The first 1,200 surveys with Bexar County ZIP codes which were received and utilized for the purpose of this study would be representative of BAMC's Army retiree and survivor population.

Limitations

The following constraints were operative during this project:

1. The study involved only the scope of outpatient services and programs at BAMC.
2. The research period covered a one-year time frame.
3. While the retirement newsletter to which the survey was attached might have encouraged a higher response rate from frequent readers of this newsletter, it might have generated a lower response rate from those who are infrequent readers of or do not read the newsletter.
4. Because of the present administration's scrutinization of retirement benefits, the responses may have demonstrated the Hawthorne effect by indicating an elevated level of perceived need.

Research Methodology

The methodology used to conduct this research included the following:

1. A study of the marketing strategies for outpatient services being utilized in the health care industry was carried out by reviewing the literature and visiting the following hospitals: Bexar County Hospital District, Humana Metropolitan General Hospital, Lutheran General Hospital, Southwest General Hospital, and Southwest Texas Methodist Hospital.

2. A list of outpatient services/programs currently available at BAMC was compiled and internal marketing information pertaining to utilization (i.e., utilization by service, percentage of ambulatory patients admitted, etc.) was gathered.
3. External marketing data pertaining to the service area (i.e., population growth, socioeconomic profile, etc.) were obtained from the City Planning Department, the State Department of Health, and other related organizations.
4. The Chief of Staff for Administration, the Chief Nurse, and the Chief of Staff for Clinical Services were asked to identify one individual in each outpatient service (a possibility of three individuals per service) who represented the command's decision-makers in terms of ambulatory services.
5. The Delphi technique was utilized in distributing two rounds of questionnaires designed to reach consensus opinions among individuals selected as BAMC decision-makers in outpatient services. The first round of questions required the decision-makers in each service to (a) establish levels of perceived need and dissatisfaction by service/program which, if exceeded, could result in altering the service/program presently provided and (b) establish levels of unfamiliarity with services/programs which, if exceeded, could result in new or modified methods to disseminate information. The second round of questions required the decision-makers in each service to review the results of the previous questions and revise their responses in order to reach a consensus.
6. A survey tool was designed to assess the Army retired population's

perceived need for and satisfaction and familiarity with outpatient services at BAMC.

7. The survey was pretested in November, 1984, by thirty of the 10,340 people in the Army retired population residing in Bexar County. The thirty individuals were chosen by systematically sampling every three hundred forty-second individual on an alphabetical list provided to the Retired Services Office by the Automation Management Office, Ft. Benjamin Harris. The surveys solicited input from the thirty individuals concerning the design and the length of the instrument by providing space for responses and suggested changes.
8. The results of the pretest were utilized to design the final survey format.
9. The final survey was administered in March, 1984. It accompanied a twice-yearly newsletter sent to every Army retiree and dependent of a deceased Army retiree currently on eligibility status with the Retired Services Office (a component of the 5th Army Adjutant General's Office) residing in the Greater San Antonio and the Houston area.
10. A sample size appropriate for making inferences about the population as a whole was determined by using the following formula:

$$n = \frac{Nz^2pq}{d^2 (N - 1) + z^2pq}$$

where: n = Sample size

N = Population size

p = Estimate of true proportion; since this estimate was unknown, 0.5 was used to obtain the largest sample necessary for reliability

$q = 1 - p = 0.05$

z = Value used for a 99 percent confidence interval

d = Acceptable width of the difference of the sample proportion from the true population proportion; in this case, plus or minus 0.05 was used

Following a three-week period of survey collection, all those with Bexar County ZIP codes were utilized for tabulation purposes in order to meet the population sample size requirement as well as the sample size requirements of individual subgroups.

11. Automation management support was utilized to identify percent of respondents according to need for and familiarity and satisfaction with outpatient services/programs as well as to provide information relevant to the formulation of a marketing strategy.

12. The respondent percentages were compared to the levels established by BAMC managers. For each category of need, familiarity, and satisfaction, a null hypothesis was developed using the percent of the level determined by BAMC managers and then analyzed at the .01 level of significance. For example:

The null hypothesis is that the level of unfamiliarity with an outpatient cardiology service is less than or equal to 1.

Familiarity is being met if: Accept Ho: $p \leq 1$.

The null hypothesis is that the level of unfamiliarity with an outpatient cardiology service is less than or equal to 1.

Familiarity is not met if: Reject Ho: $p \leq 1$.

The following formula was used to conduct these analyses:

$$S = np + Z\sqrt{np(1-p)}$$

where: S = Critical value of characteristic of interest (need, familiarity, dissatisfaction)

n = Sample size

p = Proportion acceptable to BAMC managers

Z = 2.58 (at .01 level)

13. For those services for which the null hypothesis was rejected in terms of need and dissatisfaction, recommendations based upon the respondents' comments are made, within the context of a marketing strategy, to alter existing services/programs.

14. For those services for which the null hypothesis was rejected in terms of unfamiliarity with services, recommendations based upon the respondents' comments are made, within the context of a marketing strategy, to familiarize the population with existing or future services/programs.

15. A marketing strategy was formulated utilizing (a) external and internal marketing information and (b) recommendations which resulted from the marketing research conducted of the beneficiary population (see nos. 13 and 14 above). The four major marketing concepts (product, place, price, and promotion) were applied to either (a) a differentiated marketing strategy, which is used when an organization designs separate services (products) and/or marketing programs for each individual consumer segment or (b) an undifferentiated marketing strategy, which involves no market segmentation and occurs as a homogenous approach by focusing on what is common to all members of the market rather than what is different. Strategies were recommended based on a final composite of (a) the differentiated

and undifferentiated approaches to marketing, (b) the marketing approaches to ambulatory care exhibited in the literature and by San Antonio hospitals, and (c) the established goals and objectives of Brooke Army Medical Center.

Footnotes

[1]"Management Rounds: Planning and Development," Hospitals 55 (16 December 1981): 39.

[2]Ibid.

[3]Philip D. Cooper, ed., Health Care Marketing (Germantown, Md.: Aspen Systems Corporation, 1979), pp. 5-9.

[4]Peter F. Drucker, Management: Tasks, Responsibilities, Practices (New York: Harper & Row, Inc., Publishers, 1973), p. 64.

CHAPTER II

LITERATURE REVIEW

Two primary reasons exist for the relatively recent introduction of ambulatory care marketing to the health care field. One, outpatient services have received increased attention by health care providers interested in remaining viable under the prospective payment plan. The wide proliferation and the recent success of ambulatory services at solving noneconomic issues evince the continued growth of this form of care in the future. Second, the application of marketing techniques in the industry as a vehicle to assess consumer needs and structure patient services has also been recognized.

As opposed to a hospital's primary "market" for inpatient programs being the physician, the outpatient arena deals more directly with the patient. As a result, hospitals can market primary and specialized ambulatory care services directly to residents of their service areas. Most ambulatory care visits are based on the patient's perception of need, his willingness to be treated, and the treatment center he chooses to visit for care. Although the decision is the patient's, a hospital's ability to affect the decision is determined in part by its marketing of ambulatory services and its ability to meet the patient's needs.

To approach the information concerned with this topic area, three main themes were followed within the scope of the literature

review: (1) health care marketing, (2) application of marketing to ambulatory services, and (3) review of current marketing strategies employed by health care institutions.

Health Care Marketing

> Early opponents of marketing practices in health care have said, "Our good medicine will be our marketing program." That's a noble thought, but today it doesn't always work.[1]

In the past, hospitals have been able to survive and prosper as long as they could recruit and maintain an active, loyal medical staff. Because physicians were making most choices on behalf of their patients, hospitals were concerned with keeping them active in terms of generating an adequate number of admissions and loyal in terms of sending those admissions to one hospital.[2]

Hospitals planned with the service concept approach, overly relying on decisions of the providers/experts regarding new services, additional beds, and additional equipment. The question of whether or not the users wanted or needed those additions received little interest. The basic results of this philosophy were an unnecessary duplication of services and a surplus of hospital beds.

Later, the misguided assumption that a bigger and better mousetrap would draw people to one's door began to be recognized for its true worth by hospital managers. A disregard for the need to "design, package, communicate meaningfully to users of the system, select convenient places to distribute the services, or price the service attractively" identified the fact that health systems are not necessarily guaranteed survival on their existence alone.[3]

In response to external financial pressure, increased competition, and growth of consumerism, some hospitals began utilizing a more market-oriented philosophy. Hospital management shifted its focus from What facilities does the institution want? to What services are needed? by adapting the commercial business sector's concept of marketing to a health systems viewpoint. "The marketing concept is a health systems management orientation that accepts that the key of the system is to determine the wants, needs and values of a target market and shape the system in such a manner [as] to deliver the desired level of satisfaction."[4]

The literature identifies several basic tenets upon which the marketing concept is based. First, the development of an active market research plan to identify the wants, needs, and values of the consumer should be performed. A second tent involves the integrated controls of all activities that relate either directly or indirectly to the target market. This is accomplished through the free interplay of good ideas between the management and the people, who are the initial source of new information on changing service areas, in each respective field. A final tenet is concerned with the success of the health care system to satisfy the consumer. This result should enhance repeated use of and support for the system and engender consumer loyalty.[5] Drucker's interpretation from the business sector is that "the aim of marketing is to make selling superfluous. The aim of marketing is to know and understand the consumer so well that the product or service fits him and sells itself."[6]

Most traditional marketing concepts include four major elements:

(1) product, (2) place, (3) price, and (4) promotion. These have been best adapted to the health care industry by Cooper and Robinson, who suggest that service be substituted for product, access for place, and consideration for price and that promotion remain the same, with some change in the traditional definition.[7]

The product or service concept is based on a system of exchange, such as money paid in return for an immunization. It is the balancing of acceptable services with potential customers having a need for those services which drives the marketing concept. This exchange relationship can take many forms in the health care arena. It primarily exists between the admitting physician and the hospital (staff membership in return for referrals) or between the hospital and the patient.

In the health care industry, the success or failure of a marketing strategy is often dependent on access and availability of a service. Both demand for and satisfaction with a service are affected by these two elements.

Price is viewed somewhat differently in health care than in business due to the dominant role of third-party payers, the role physicians play in the determination of availability of services, and the utility considerations consumers make. The latter point goes beyond "price" or cost to include anything of value given up by the consumer in exchange for health care services.[8]

Promotion is the area most often mistakenly perceived to be the one and only aspect of health care marketing. It commonly has four objectives:

1. To inform and educate consumers on the existence of a product or service.

2. To remind present and former consumers of the service's continuing existence.
3. To persuade prospective buyers that the service is worth purchasing.
4. To inform the consumer of where and how to obtain and use it.[9]

A marketing strategy is developed by identifying target markets, or "segments," and then formulating a marketing plan that involves selection and proper combination of the aforementioned elements of service, access, consideration, and promotion. The first step in this process requires research, or what some authors call an audit process, to identify, collect, and evaluate information concerning such factors as consumer health care needs, demographics, economic influences, health manpower availability, and feasibility and desirability of responding to the unmet needs of the patient population.[10]

Following the market research phase, three possible strategies are considered which may be applied at any given time. The first is undifferentiated marketing, which involves no market segmentation and occurs as a homogenous approach by focusing on what is common to all members of the market rather than what is different. The strategy is to design a product/service and a marketing program that appeal to the broadest number of consumers. A second strategy involves dividing the market into meaningful segments and devoting the organization's marketing efforts to one segment instead of spreading itself thin in many parts of the market. This is referred to as concentrated marketing. Lastly, when an organization designs separate products and/or marketing programs for each individual segment, this is called differentiated marketing. The theory is that a deep position in several market segments

will strengthen the consumers' overall identification of the organization with the service/product field.[11]

Incessant collection and analysis of information and continuous monitoring of market behavior are integral parts of this process and are primary elements of any marketing strategy. Marketing also involves an element of imagination and an ability to think through the process of exchange. Knowing what the target market wants, what will make others react positively, and what can be done to gain acceptance will link and direct the marketing plan's shape.[12]

Application of Marketing to Ambulatory Services

> a manager must understand the needs and choice processes of potential customers. Specifically, in marketing ambulatory and primary health care services, health care administrators must have some understanding of how individuals select a health care provider before developing a marketing strategy. Such knowledge will be even more necessary in the future.[13]

There has clearly been an ever-increasing trend toward the use of outpatient services. Roemer examined the growth of hospital outpatient visits between 1965 and 1980 to discover a 123.2 percent increase in visits while only a 36.8 percent increase was noted in admissions to all United States nonfederal hospitals during the same time period.[14]

Hospital resources will continue to be diverted away from acute care services in response to the environmental factors which are promoting the development of ambulatory care services. The development of a societal emphasis on wellness and increased individual responsibility for personal health is moving the focus of health care services away from the traditional physician-controlled hospital setting. The object

of prospective reimbursement is to put hospitals at risk in controlling costs. Strong consideration is given to case mix alterations in order to control resource consumption within designated diagnosis groups as well as decrease lengths of stay for those cases that exceed the reimbursement level. Both these approaches provide an incentive to substitute ambulatory care for inpatient services. Further, the forecasted doctor surplus of some 70,000 physicians by 1990 will spur the development of organized ambulatory care outside of the traditional hospital setting. Lastly, advances in technology have already enhanced the ability to perform procedures on an outpatient basis. As Goldsmith and others have shown, a significant decrease in length of stay can now be achieved through the earlier detection and diagnosis of disease, thus increasing the requirements for outpatient follow-up and monitoring.[15]

In response to this increased interest in outpatient services and the application of marketing techniques to insure their success, several approaches have been published in the literature over the past few years. The basic marketing template is generally the same.[16] Some variation does exist in information requirements according to the establishment of a new facility or the expansion of an existing one or the manner in which a user versus a nonuser population will be approached.[17] Most approaches do incorporate requirements for marketing research, especially in terms of surveying consumer perceptions and attitudes in an effort to identify market segments. The identification of consumer segments has generally been performed on a theoretical basis such as socioeconomics, health role behavior, and physician loyalty.[18] Wortzel suggests that segments' profiles can be depicted by combining

health role behavior with the health belief model developed by Rosenstock.[19] Berkowitz and Flexner used physician loyalty as a basis for segmenting consumers into those who have a regular physician and those who do not.[20] Others such as Kelman and Lane have examined the utilization of specific medical services offered in the health care market.[21] No evidence exists that a combination approach has been attempted that segments consumers of a prepaid type of arrangement (e.g., health maintenance organization or federal health care facility).

A priori segmentation studies have primarily been restricted to professional judgments that have excluded consumer feelings or evaluations. Some attempts have been made to link a priori behavior to predictor variables. Berkowitz and Flexner unsuccessfully attempted to statistically connect consumer demographics to attributes of health care organizations.[22]

Three alternative research approaches have been employed to define those characteristics of medical care which are decisive in the consumer choice process. One way is to list, rank-order, or rate the importance of selected characteristics. Another approach determines which subset of characteristics best predicts overall satisfaction with care.[23] A third approach requires the development of profiles that combine different levels of several attributes, such as cost and method of payment. This approach requires complex multivariate analytic techniques to develop preference functions from the attribute profiles.[24] There have been several problems with these approaches in the past. The lack of computer support and a poor understanding of statistics have resulted in misinterpreted results. Consumers have also been known

to rate all or a large number of provider characteristics with equal importance. Examinations of attributes that predict both user and non-user satisfaction levels have not adequately addressed attributes that differ from those that concern a provider's existing patients. Because it is so difficult to construct preference functions on the more intangible attributes, it is more beneficial to utilize attributes which recent studies indicate are extremely important to consumers.[25]

Any analysis which is performed utilizing market research information from users of ambulatory services must be individually tailored to the institution. Selection and combination of the elements of product, place, price, and promotion are dependent upon the market research results and the goals of the hospital in formulating a market strategy.

Current Market Strategies Employed by Health Care Institutions

> Strategies are the creative end of marketing, perhaps the most exciting part of the entire marketing process.[26]

Formulating a market strategy is the basis for making integrated strategic decisions about current programs and services and about potential entry into new markets or development of new services. Several recurring marketing strategies designed to attract patients can be identified in the health care industry today. A form of undifferentiated marketing presently exists in which hospitals compete hardest in areas where consumers are equally distant from two or more health care facilities. This strategy is most commonly labeled peripheral penetration. It acknowledges that the greatest consumer utilization of one institution occurs within a five-mile radius of the hospital. Since little

increase in patient use can be gained in this core area, the hospital shifts its focus to areas in which consumer and physician loyalty are likely to be divided and open to influence. This form of marketing strategy is presently manifested in the construction of satellite facilities and in the targeting of promotional efforts on certain potential customers.[27]

A traditional approach to maximizing the strength and the position of an organization in the market is through product/service development. A marketing strategy being utilized very widely by Humana is the "halo effect." This approach is focused on the use of centers of excellence, in which a tertiary level hospital promotes a specific area, diabetes, for example, as being technically sophisticated. Humana Hospital in San Antonio has achieved widespread success with this approach because consumers positively recognize the center of excellence and associate this image with the institution's other service.[28]

A strategy which, by definition, is identical to differentiated marketing is also becoming more prevalent. Most commonly termed positioning, the strategy involves establishing a unique marketing position in the consumers' minds by differentiating the hospital and its services from other institutions and their services. An example of this approach is Southwest General Hospital in San Antonio, which has acquired new technologies and established specialties to operate the plant in an effort to promote a high-tech image.[29]

Current findings, ideas, and techniques related to health care marketing in the outpatient setting have been reviewed in order to present the significance and the applicability of a marketing strategy to

the federal health care sector. The next step is to begin evaluating Brooke Army Medical Center's position as a successful organization by conducting an audit of available marketing information and performing original market research.

Footnotes

[1]Patrick M. Mages, "Marketing Medical Services: Hot, New, Misunderstood Topic in Health Care Delivery," Group Practice Journal 31 (April 1982): 18.

[2]Robin S. MacStravic, "Macro-Marketing in Health Care," Hospital & Health Services Administration 28 (May-June 1983): 54.

[3]Carol Carr and William Binder, "Health Care Marketing Gains Popularity as a Needed Activity for Hospitals," Federation of American Hospitals Review 6 (March-April 1973): 73; Philip D. Cooper, ed., Health Care Marketing (Germantown, Md.: Aspen Systems Corporation, 1979), p. 5.

[4]Cooper, p. 5.

[5]Ibid.

[6]Peter F. Drucker, Management: Tasks, Responsibilities, Practices (New York: Harper & Row, Inc., Publishers, 1973), p. 64.

[7]Philip D. Cooper and Larry M. Robinson, Health Care Marketing Management (Rockville, Md.: Aspen Systems Corporation, 1982), pp. 151-266.

[8]P. McMurry, "Marketing: Simple Techniques Work Best, Expert Says," Hospitals 56 (16 March 1982): 31.

[9]Jon G. Keith, "Marketing Health Care: What the Recent Literature Is Telling Us," Hospital & Health Services Administration 26 (Special Issue #2, 1981): 66-82.

[10]Ibid.; Jesse E. Kent, "1983: The Year for Marketing," Fund Raising Management 14, no. 3 (1983): 25.

[11]Philip Kotler, Marketing for Nonprofit Organizations. 2nd ed. (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1982), pp. 108-9; "Marketing, Strategic Planning: Tools for the Future of the Hospital Industry," Federation of American Hospitals Review 15 (March-April 1982): 33.

[12]Bernard Lachner, "Hospital Marketing Is a Survival Strategy, Industry Leader Believes," Federation of American Hospitals Review 15 (March-April 1982): 59-64.

[13]Philip K. Berger and Joseph P. Guiltinan, "A Determinant Attribute Approach for Developing Primary Care Marketing Strategies," Journal of Health Care Marketing 2, no. 1 (1982): 23.

[14]Milton I. Roemer, Ambulatory Health Services in America: Past, Present and Future (Rockville, Md.: Aspen Systems Corporation, 1981), p. 273.

[15]J. C. Goldsmith, "Competition: How Will It Affect Hospitals?" Hospital Financial Management 35 (November 1981): 16-28.

[16]Keith, pp. 66-82.

[17]Maryland Hospital Education Institute, Hospital Sponsored Ambulatory Care (Chicago: American Hospital Association, 1980), p. 56; Evelyn R. Neuhaus, "A Method for Determining the Marketing Feasibility of a Satellite Clinic," Journal of Health Care Marketing 2, no. 1 (1982): 32.

[18]Eric N. Berkowitz and William A. Flexner, "Health Care Consumers: A Market Segmentation Approach Applied to Hospital Planning," in 1979 Northeast AIDS Proceedings, ed.: Lewis Cerreng (Boston: N.p., 1979), pp. 16-23; William C. Stratmann, James A. Black, Stephen P. Brown, and Marshall V. Rozzi, "A Study of Consumer Attitudes about Health Care: The Control, Cost and Financing of Health Services," Medical Care 13 (August 1975): 663; Lawrence H. Wortzel, "The Behavior of the Health Care Consumer: A Selected Review," in Advances in Consumer Research (Cincinnati: Association for Consumer Research, 1975), p. 299.

[19]Irving M. Rosenstock, "Why People Use Health Services," Milbank Memorial Fund Quarterly 44 (1966): 94-127.

[20]Berkowitz and Flexner, pp. 16-23.

[21]Howard R. Kelman and Dovorhz S. Lane, "Use of Hospital Emergency Room in Relation to Use of Private Physician," American Journal of Public Health 66 (December 1976): 1190.

[22]Berkowitz and Flexner, pp. 16-23.

[23]Lois C. Gray, "Consumer Satisfaction with Physician Provided Services: A Panel Study," Social Science and Medicine 14A (1980): 68.

[24]Y. Wind and L. K. Spitz, "Analytical Approach to Marketing Decisions in Health Care Organizations," Operations Research 24 (1976): 973-90.

[25]B. J. Doyle and J. E. Ware, Jr., "Physician Conduct and Other Factors That Affect Consumer Satisfaction with Medical Care," Journal of Medical Education 52 (1977): 796; Douglas A. Klegon, Paul O. Kingstrom, and Douglas D. Gregory, "Ambulatory Health Care Centers: Image and Preference among Consumers," Journal of Ambulatory Care Management 5 (November 1982): 18-20.

[26]Robert Rubright and Dan MacDonald, Marketing Health and Human Services (Rockville, Md.: Aspen Systems Corporation, 1981), p. 158.

[27]Bill Jackson and Joyce Jensen, "Majority of Consumers Support Advertising of Hospital Services," Modern Healthcare 14 (April 1984): 96-97.

[28]Ibid.

[29]Ibid.

CHAPTER III

MARKETING AUDIT DISCUSSION

> Hospitals seeking to become proficient in marketing and the development of marketing strategies need to recognize that a broad array of marketing information is available to them . . . market research should be performed when needed information about specific issues cannot be obtained from the general marketing information.[1]

This chapter focuses on marketing information and marketing research. These two aspects of the marketing audit process will assist in formulating a strategy by performing the following types of functions: appraising the internal and external environment, evaluating the institution's mission, searching for opportunities and weaknesses, and studying the present and future of the organization's market relations.

Marketing Information

Internal

Brooke Army Medical Center is the United States' second largest Army medical center. According to its mission statement, it maintains and operates 713 hospital beds for definitive inpatient treatment, including all phases of medical, surgical, and neuropsychiatric care. Additionally, the hospital provides medical facilities to support severely burned and injured military patients, select civilians, and patients from the Veterans Administration, as required. A more comprehensive mission statement is provided in Appendix A.

The new Surgeon General of the Army recently released a set of five goals for the Army Medical Department (AMEDD) which will certainly impact on the future mission of BAMC. Three of them in particular--(1) fully staff the AMEDD in emergency room and ancillary support areas, (2) concentrate on establishing family practice programs, and (3) decentralize appointment systems and structure them in a fashion which is responsive to patient and practitioner needs--are relevant to this discussion. BAMC's current goals are aligned with mission responsibilities while institution-specific objectives are established by a group of key clinicians, teaching chiefs, and administrators. Examples of some of the more recent objectives include: (1) gaining greater commitment and involvement of the department chiefs in the day-to-day management of programs that directly impact on their personnel, (2) determining nature, magnitude, and distribution of "inadequate information flow," (3) clearly defining and disseminating the BAMC mission, (4) changing the perception that top management is not visible enough in the organization, and (5) identifying and promulgating a single, unifying value for BAMC. A strategic plan within which these types of organizational objectives would fit does not exist in the organization, per se, and, as is common in most Army medical facilities, minimal attention has been devoted to marketing related concerns.

Currently, BAMC is under review to determine the bed size requirements of a new facility. Major factors which are contributing to the decision include: the presence of a large Air Force medical center that serves an overlapping catchment area and is currently underutilizing available bed space; the cost of CHAMPUS health care services

within the Fort Sam Houston area; a decline in workload at Brooke Army Medical Center, accompanied by an increase in intensive care unit utilization; the future graduate medical education requirements of the Army Medical Department; the forecasted growth of San Antonio and the Army and Air Force retiree population; the current shift of medical and surgical practice to the outpatient setting; and the impending change in workload accountability practices from the medical care composite unit (MCCU) to one that measures according to intensity of care and diagnosis-related groups.

Brooke Army Medical Center's strengths are associated in large part with the broad range of services it provides. An extremely comprehensive and capable medical and nursing staff is necessary to support the teaching mission and the diversity of services available at the center. Likewise, the technical facilities are present that complement the level of care which is provided and, in several instances, exceed the state of the art. Management capabilities are lacking only in the automation arena, which is currently being elevated by the installation of a hospitalwide computer system. Judging by those indicators used to date, BAMC enjoys a good image amongst its consumers and a fine reputation in the community as a trauma center and a source of expert care for burn victims.

The two primary weaknesses from which Brooke Army Medical Center suffers are (1) its medical facility and (2) its method of workload accounting. BAMC's major patient care facilities are composed of forty-year-old wood-frame construction; that is, 400 of its beds are housed in a former barracks facility while the ancillary services reside in a

former stable. Space constraints have resulted in significant patient care-related expansion to fifty-six sites remote from the main hospital and spread over a 3-square-mile area. This situation has caused numerous problems for patient care because of excessive patient shuttling, space constraints, dispersion problems, and accreditation for life/safety-related requirements. BAMC's second weakness is related to the inability of the current MCCU to account for intensity of care. Because this facility is involved in extremely intensive care practices that dictate high lengths of stay, it does not receive appropriate workload credit by the MCCU measure. As a result, supply and personnel resources are adversely affected, and the organization supports this level of patient care mission under great strain.

A review of fiscal and manpower data finds that, in Fiscal Year (FY) 1984, Brooke Army Medical Center maintained an operating budget of $104,144,310 and recorded more than 19,000 inpatient admissions. Daily average admissions for the medical center during FY 1984 were 53.2, which reflects a 4.5 percent decrease since FY 1981. The retiree portion of this statistic has remained relatively constant since FY 1981, being 16.3 during FY 1983 and FY 1984, which accounted for 31 percent of the medical center's total daily average admissions. In comparison, daily average admissions for active duty have decreased by 5 percent while the dependent population admissions have increased by 3 percent during the same time period[2] (see Appendix B).

Daily average occupied beds at BAMC during FY 1984 were 497, which was a 4.8 percent decrease from FY 1981. The retiree portion of this statistic increased from 31 percent in FY 1981 to 35 percent in

FY 1984, while the dependent rate increased 1 percent and the active duty rate decreased 5 percent during the same time period[3] (see Appendix C).

Average length of stay at BAMC during FY 1984 was 9.3, which reflected a 1.1 percent decrease from the 9.4 statistic in FY 1981. Length of stay for retirees increased from 10 to 10.6 in FY 1984, after a decrease to 9.9 in FY 1983. Active duty length of stay increased from 13.9 in FY 1981 to 15.1 in FY 1984, while the dependent rate fell from 7.0 to 6.7 during the same time period[4] (see Appendix D).

The MCCU was fixed at 1,993 in FY 1984, which was a 1 percent decrease from the FY 1981 figure. Likewise, the hospital composite unit decreased by 4.7 percent from FY 1981 to FY 1984[5] (See Appendix E).

An average inpatient day at Brooke Army Medical Center would include the care of approximately 496 patients, 53 admissions, 30 cases of surgery, 3 births, and 104 immunizations, with 1,900 hospital meals being served. Shifting attention to the outpatient and ancillary support arena, one finds that an average day at BAMC consists of 3,132 clinic visits, 4,743 prescriptions being filled, 47,505 laboratory procedures being performed, and 3,066 X-rays being taken.

Total clinic visits at BAMC from FY 1981 to FY 1984 rose 3.8 percent, although visits decreased from FY 1983 to FY 1984 by 5.1 percent (see Appendix F). There are thirty-three activities at BAMC that see patients on an outpatient basis. Appendices G and H review outpatient visits and total expenses for each of these activities from First Quarter, FY 1984, through First Quarter, FY 1985. Also, Appendix I provides a listing of the services by cost per visit for the same time

period. An average of the cost per visit for each of these services over the last five quarters identifies the following five top services in order of highest cost per visit: (1) hematology, (2) psychiatry, (3) nephrology, (4) plastic surgery, and (5) endocrinology.[6] Additionally, average bed days per admission was computed for four consecutive months and revealed the following top five services as treating patients with the highest average bed days per admission: (1) neurology, (2) neuro-surgery, (3) psychiatry, (4) thoracic surgery, and (5) hematology (see Appendix J). A final analysis of these services was performed to identify percentage contribution to total admissions at the medical center (see Appendix K). The following five services were found to admit the highest percentage of patients: (1) internal medicine, (2) general surgery, (3) gastro-enterology, (4) cardiology, and (5) orthopedics.[7]

Several other factors are important to the internal assessment of BAMC outpatient services. As a teaching hospital, Brooke Army Medical Center conducts an extensive program of postgraduate medical education, including medical internship training and residency/fellowship training in twenty-two medical specialties and three dental specialties. Over 235 physicians are in training at the present time who work and study in the outpatient environment. Additionally, a department of primary care does not exist, and each outpatient care area is staffed and operated by the respective department or service.

External

Brooke Army Medical Center is part of a large system of twenty-one civilian and three federal acute care hospitals in the San Antonio

area. The roles other health care facilities play in this system and the potential impact these resources may have on the BAMC beneficiary population are critical to an assessment of the external environment.

The total licensed bed capacity in the San Antonio area is 7,579; however, the true number of beds available for patient use is actually much less. The Camino Real Health Service Agency (HSA) identifies what is termed "real bed capacity," arriving at a total of 7,502 beds for this area, of which 2,362 are federal beds (see Appendix L). Medical/surgical beds (including critical care beds) comprise 79 percent of the total available beds; obstetrics, 4 percent; pediatrics, 7 percent; psychiatry, 10 percent; and other beds (including long-term and rehabilitation beds), less than 1 percent (see Appendix M). Appendix N shows the occupancy rates in each county. Although overall there is idle bed capacity in these areas, certain services in some counties are operating at above the recommended occupancy rates, indicating a maldistribution of beds.[8]

Admissions, patient days, and length of stay for the San Antonio area are depicted in Appendix O. Civilian hospitals experienced a total of 180,561 admissions while the federal hospitals reported 61,189 in 1980. Although federal hospitals account for over 30 percent of total patient days, they contribute only 25 percent of the total admissions. This is largely due to the generally longer lengths of stay in the federal facilities. Overall real bed occupancy rates for the federal hospitals are also higher (76 percent) as a result in comparison to the civilian facilities.[9]

A second area of concern to BAMC's external environment is the

degree to which competitors are utilizing marketing techniques in their strategic planning process. In studying the marketing applications which exist at the local hospitals, it was clearly evident that either a large degree of emphasis has been placed on marketing or none at all. At those institutions in which marketing techniques are being employed, only outdated information is being made public. Even so, the methods utilized in the past to gather information and conduct marketing research were far more sophisticated than those the competition is contemplating using at the present time. Additionally, serious effort has been devoted to strategic planning and to organizing the institution for the future, especially in regard to outpatient care. One hospital in particular attributes its recent growth in the health maintenance organization (HMO) and freestanding clinic arena directly to strategic marketing techniques.

In comparison, local hospitals which are not currently addressing issues in a marketing perspective are also undecided on future growth and do not have an appreciation for the competition, the consumer population, or the way in which to begin obtaining that information. Two local hospitals are employing personnel to perform a marketing function. However, discussions with these individuals revealed that public relations and some advertising work are more representative of their duties. No significant work has been done at either institution to assess the population's perceived need, satisfaction, or familiarity levels.

Another important aspect of concern to the BAMC external environment is an assessment of the beneficiary population's use of CHAMPUS

for outpatient care. During FY 1984, 4,025 patients sought outpatient care and services in the Fort Sam Houston catchment area at a cost to the government of $2.2 million (see Appendix P). Approximately 92.4 percent of the $2.2 million was directly attributable to the care sought by retirees and their dependents. The five services utilized most by retirees on an outpatient basis included: (1) psychiatry, Group I, (2) cardiovascular, (3) psychiatry, Group II, (4) general surgery, and (5) orthopedics. The top five outpatient services by average government cost per visit were: (1) gastro-enterology, (2) neuro-surgery, (3) thoracic surgery, (4) general surgery, and (5) ophthalmology[10] (see Appendix Q).

With the understanding that outpatient visits often generate inpatient care or follow inpatient care, it is important to briefly identify these costs as well. The total cost to the government for inpatient services (hospital and professional) for FY 1984 was $4.9 million, while the patient share equaled $1.6 million. Of the total government and patient cost, retirees contributed 20 percent and their dependents contributed 40 percent. The total government and patient cost for inpatient and outpatient care in the Fort Sam Houston catchment area during FY 1984 was $9.5 million.[11]

A critical aspect of any external assessment involves an understanding of the patient market, or, in BAMC's case, the beneficiary population, that is eligible to seek care from the institution. The BAMC catchment area (see Appendix R) population was last totaled according to ZIP code (see Appendix R) and county location (see Appendix S) in 1980. Then, the population totaled 1.2 million, of which 80 percent

resided in the rural areas of Bexar County. Currently, there are 10,340 retirees and dependents of deceased retirees located in Bexar County, which accounts for 93 percent of the total number of retirees and survivors in the BAMC catchment area. Fifty-four percent of the total retiree and survivor beneficiaries reside in ZIP codes located within a 5-mile radius of Brooke Army Medical Center, and 21 percent reside within a 2.5-mile radius (35 percent of this area is Fort Sam proper, on which no retirees live). Within the BAMC catchment area, 90 percent are male retirees and survivors while 10 percent are females. Additionally, the following percentages identify the retiree and survivor population by age and sex: (1) Twelve point four percent are males in the 18-44 age group, (2) 55 percent are males in the 45-64 age group, (3) 21 percent are males in the 65+ age group, (4) 1.6 percent are females in the 18-44 age group, (5) 5.3 percent are females in the 45-64 age group, and (6) 2.8 percent are females in the 65+ age group[12] (see Appendix T).

Other demographic information was not available concerning such items as year of retirement, rank at retirement, level of education, religious preference, current income level, current occupation, etc. Information also was not available for the catchment population as a whole concerning levels of perceived need for and satisfaction and familiarity with BAMC services. The last time a study was conducted to determine patient origin was in 1980, by the Bureau of State Health Planning and Resource Development, Texas Department of Health. At that time, the results indicated that, while patients originating outside of the catchment area accounted for less than 8 percent of the total

civilian hospital admissions, the federal hospital proportion was over 35 percent of the total. This high percentage in the federal facilities is expected due to the referral nature of the federal hospitals (see Appendix U). The BAMC distribution shows that 69 percent of the admissions originate from Bexar County; 3 percent, from Guadalupe County; 16 percent, from outside the catchment area but within the state's borders; 9.8 percent from out of the state; and the remaining 2.6 percent, from the nine other counties in the BAMC catchment area[13] (see Appendix V).

A final analysis of the external environment involves the relationship BAMC maintains with the community and the promotional activities the organization undertakes with the community and the members of its beneficiary population. BAMC enjoys an extremely good posture with the community both professionally and on a social basis. A large number of BAMC physicians moonlight at local health care facilities and support the accreditation requirements these institutions must meet. Army doctors and other members of the professional and administrative staff also actively volunteer in teaching health-related programs to community organizations. An on-going relationship exists with The University of Texas Health Science Center, and graduate medical activities range from conferences to full-time medical student, internship, residency, and, in some cases, fellowship level training between the two institutions. A variety of other graduate level educational experiences exist between BAMC and local institutions in areas such as health care administration, dietetics, pharmacy, nursing, and ministry. On a social basis, BAMC successfully conducts a reciprocal relationship with area

medical organizations, private industry, and the city government. Participation and representation in communitywide social or sports activities are invited and strongly supported by the BAMC leadership.

The purpose of BAMC's promotional activities in regard to the beneficiary population is to disseminate information concerning changes and/or additions in services as well as provide some educational material. Personnel, service, and technological improvements are highlighted utilizing local military newspapers. Recently, some emphasis has been placed on publishing protective responses to critical articles published in the local civilian newspapers. The scope of media use is very limited, however, and no emphasis is placed on promoting activities that may identify new markets or redevelop old ones. Additionally, no emphasis is placed on utilizing the media to develop BAMC's image in the community or among its beneficiaries. Some degree of apprehension does exist because Health Services Command is not in favor of promoting services to the extent that the community may interpret the offering as free care.

The preceding discussion has focused on marketing information readily available to the hospital which, when evaluated from a different perspective, can be invaluable in the development of marketing strategies. Similarly, market research generates valuable information for strategy development but is concerned with addressing specific issues which will augment the former process.

Marketing Research

The second portion of the marketing audit involves conducting original, objective, systematized research which is designed to provide

information that is complementary to rather than duplicative of marketing information. More specifically, market research can generate information on consumer perceptions, preferences, and potential demand and usage by answering questions related to low occupancy and low utilization of services.[14]

Delphi Study

In order to evaluate the importance of information gained through a consumer market research survey, it was necessary to establish specific levels that would warrant action on the behalf of managers in BAMC's outpatient services. To do this, a modified Delphi survey was distributed to administrative, medical, and nursing managers in each of the thirty-three outpatient areas at Brooke Army Medical Center. Because the consumer survey would focus on levels of perceived need for and unfamiliarity and dissatisfaction with outpatient services, the managers were asked to establish percentage levels which, if exceeded by consumer responses, would warrant some action on their part.

A total of forty-three individuals were identified by the Deputy Commander for Administration (DCA) and the Deputy Commander for Clinical Services (DCCS) as managers in the outpatient setting. Of these, 33 were medical/surgical service chiefs or individuals with supervisory responsibility in the outpatient setting (e.g., chief of podiatry, chief of occupational therapy, chief of physical therapy, etc.), 4 were administrators, and 6 were nurses. Each manager received a letter of instruction accompanied by the Delphi survey and a pre-addressed return envelope to facilitate his/her response (see Appendix W). A 65 percent response rate was initially realized, which, when followed by a phone

call, increased to 86 percent.

A review of the responses identified that managers were establishing percentage levels as low as 0 in some cases and as high as 75 in others. Ten of the respondees were contacted concerning the diversity of percentage levels and asked if they would consider readjusting the responses in order to establish a consensus of opinion. All ten of those individuals contacted affirmed that they would not change the initial levels regardless of the responses offered by managers in other outpatient settings. The reason given was that each outpatient service functions within separate resource constraints that dictate a distinct ability to expand or change services according to need and unfamiliarity levels.

Also, because recommendations received from the presurvey (see Survey Process) pointed out that respondees would not be able to accurately remember their level of satisfaction with each service visited over the past year, a change in the final survey was made. Instead of denoting service-specific satisfaction levels, the final survey asked respondees to rate satisfaction with all outpatient services provided throughout the medical center. The same ten BAMC managers that were initially contacted also agreed that the satisfaction levels established by the Delphi study should be used with centerwide applicability. On this basis, it was decided to modify the Delphi study by not utilizing a second round of questionnaires to achieve more appropriate consensus, particularly since the initial round had already achieved the Delphi technique's purpose of assuring significant participation in the decision-making process.[15]

The percentage levels for need and familiarity were compiled separately for each service (see Appendix X). Cases in which the service chief, a department level administrator, and a clinic nurse were all identified as managers required weighting the responses according to individual ability to influence the decision-making process. Following consultation with the offices of the DCA and the DCCS, it was decided to weight the responses received from administrators and nurses at one-half the weight of the service chief. Satisfaction levels were compiled by averaging the responses of all forty-three managers and applying them medical centerwide rather than by specific service.

These established percentage levels were later used to quantify the survey responses of health care beneficiaries. At the same time the Delphi responses were undergoing review, members of the population were participating in the presurvey process.

Survey Process

Based upon data presented in the Marketing Information portion of this discussion, it was decided that the Army retiree and survivor group living in Bexas County was an ideal population to study. Factors which confirmed this decision included: residence stability, percentage of the beneficiary population residing in Bexar County, availability and reliability of census tract information concerning Bexar County, forecast for growth of group, rise in average life expectancy, average daily admission rate, increase in average daily occupied bed rate, expansion in average length of stay, use of CHAMPUS, forecast for rise in outpatient clinic use, and population's increasing percentage of the medical center's total admission rate.

A survey tool was then formulated that would identify this population's perceived levels of need for and dissatisfaction and unfamiliarity with outpatient services. Additionally, questions concerning this population's preferences, demand potential, and usage patterns were included that would assist in the formulation of a marketing strategy. Finally, certain demographic information was sought which was either unavailable or significantly out of date to warrant reassessment.

An initial presurvey was administered to thirty members of the population by systematically sampling every three hundred forty-second individual on an alphabetical list of retirees and survivors provided to the Fort Sam Houston Retirement Services Office by Fort Benjamin Harris, Indiana. It was also accompanied by a cover letter and a prestamped business reply envelope to facilitate responses (see Appendix Y).

At the end of two weeks, 63 percent of those surveyed had responded. Several areas in the survey were subsequently changed based on the respondees' comments (see Delphi Study) and a final survey was presented to the Retirement Services Office for inclusion in the twice-yearly newsletter. To maximize response rate, a brief article concerning the upcoming survey was included in the previous edition of the retiree newsletter. Additionally, the front page of the newsletter which contained the survey directed reader attention to the "centerfold," which could be folded and returned through the mail at no cost to the respondee (see Appendix Z).

The Retirement Services newsletter was distributed to 19,500 retirees and survivors living in the Greater San Antonio and the Houston area. On receipt, surveys with a Bexar County ZIP code were separated

and numbered. The required sample size needed to make inferences about the Bexar County population as a whole was computed according to the following formula:

$$n = \frac{Nz^2pq}{d^2 (N - 1) + z^2pq}$$

where: n = Sample size

N = Population size

p = Estimate of true proportion; since this estimate was unknown, 0.5 was used to obtain the largest sample necessary for reliability

q = 1 - p = 0.5

z = Value for a 99 percent confidence interval

d = Acceptable width of the difference of the sample portion from the true population proportion; in this case, plus or minus 0.05 was used

This computation determined that 623 surveys would be needed to make inferences about the population as a whole. In order to make inferences concerning population subgroups, such as those individuals that seek emergency room (ER) care, it would be necessary to know the total number of people in the population that seek ER care. This information does not exist. As a result, because the entire population had been surveyed, it was decided to utilize the percentage of responses for each question as an indicator of the number of people in the population as a whole that would respond to that question. This percentage would then be multiplied by the total population in order to determine the subpopulation size (N) from which to compute an appropriate sample. This process is presented in the following portion of the marketing

research discussion entitled Study Results.

Based on this requirement, the survey collection period was held for three weeks in order to receive the highest number of surveys possible from Bexar County ZIP codes. At the end of the collection period, a total of 1,200 surveys had been received, indicating an 11.6 percent response rate within the county of concern. Appendix AA offers a breakdown of the surveys according to ZIP code.

The responses to the 1,200 surveys were reformatted according to specific groups and entered into terminals connected to the Institute of Surgical Research computers. An Organizational Effectiveness software program for surveys was modified to accommodate the parameters of this study and facilitate the statistical computations involved with this number of surveys. The result was a survey which could be utilized to produce the following information: the number of respondents for each question item in each specified group; the mean and median values for each item in each specified group; the standard normal random variable Z; the significance level or alpha value; and the Mann-Whitney U test. The first step in quanitifying the value of this approach to marketing research was to sort through the tabulated data and select the applicable results.

Survey Results

In order to insure that the basic research questions were addressed, categories for need, satisfaction, and familiarity were provided. To quantify the additional marketing information which was generated by the survey instrument, three additional categories were also established: (1) usage patterns, (2) preference, and (3) potential demand.

Need. An analysis of need was conducted by comparing percentage levels established by BAMC managers which, if exceeded, should result in some action against the actual respondent percentages identified in the survey. A null hypothesis was developed for each outpatient service using the percent of the level ($\underline{1}$) determined by BAMC managers and then analyzed at the .01 level of significance. The following formula was used to conduct these analyses:

$$S = np + Z\sqrt{np(1-p)}$$

where: S = Critical value of need

n = Number of respondents

p = Proportion acceptable to BAMC managers

Z = 2.58 (at .01 level)

In the case of emergency room services, BAMC managers accept up to and including 22 percent of the market as seeking or exhibiting need of care from non-BAMC sources. Given that 28 of 563, or 5 percent, of the respondents seek emergency care from non-BAMC sources, does this exceed the established level and warrant action?

Ho: $p \leq \underline{1}$ Null hypothesis is that the level of need is less than or equal to $\underline{1}$ (need is met).

Ho: $p > \underline{1}$ Null hypothesis is that the level of need is greater than $\underline{1}$ (need is not met and some action is required).

$$S = (563)(.22) + (2.575)\sqrt{(563)(.22)(.88)}$$

$$S = 151$$

$$\underline{1} = 151/563 = .27$$

Accept Ho: $.05 \leq .27$. Need as established by the respondents is less than the level established by BAMC managers at the .01 level of

significance; need is being met.

A similar analysis of need was conducted for the other outpatient services and is provided as Appendix BB. Only in the case of gynecology was the level of need established by BAMC managers exceeded at the .01 level of significance. Need is evidenced in the case of four outpatient services if the respondent level is compared with the BAMC manager level prior to the statistical analysis. However, the number of responses for each of these clinics is so small that statistical significance is not warranted.

For comparison purposes, the three top decision-makers at BAMC were also asked to establish need levels which, if exceeded, would result in consideration being given to expanding a specific service. An average of the levels set by the Commanding General, the Deputy Commander for Clinical Services, and the Deputy Commander for Administration was determined to be .27. In no instance but gynecology would the respondent level have resulted in the rejection of the null hypothesis given the levels established by the command group.

Satisfaction. Levels of dissatisfaction with the medical center as a whole were similarly analyzed with levels established by the BAMC managers at the .01 level of significance (see Appendix CC). Central Appointments was the only indicator which exceeded the BAMC manager level following the analysis. Additionally, an analysis was performed by adding the responses of Adequately Satisfied to the Not Satisfied category. Even in this case, the only indicator which continued to exceed the BAMC manager level at the .01 level of significance was Central Appointments.

Familiarity. Two areas regarding familiarity were studied utilizing the responses to the survey instrument. First, the level of awareness of outpatient services in general at BAMC was noted to be extremely high: 96.7 percent (see Appendix DD). As a result, the level of unfamiliarity with individual services was noted to be so low (3.3 percent) that the total number of unfamiliar responses was less than any one level set by the BAMC managers. Although statistically insignificant, the top five services which consumers noted as most unfamiliar to them were: (1) plastic surgery, at 0.6 percent, (2) social work, at 0.5 percent, (3) optometry, at 0.5 percent, (4) speech pathology, at 0.3 percent, and (5) nutrition, at 0.3 percent.

Secondly, unfamiliarity levels established by respondees for outpatient programs were compared to the levels established by BAMC managers at the .01 level of significance (see Appendix EE). The null hypothesis was rejected in all cases and the alternate hypothesis accepted in that the level of unfamiliarity with outpatient programs exceeded 1 at the .01 level of significance.

Usage patterns. A review of the current health care usage patterns of all survey respondents indicated that 89 percent seek some portion of their total health care at Brooke Army Medical Center. Of the individuals that do obtain care at BAMC, 81 percent frequent this institution for all (100 percent) of their care needs (see Appendix FF).

Some 27 percent of the respondents do seek varying amounts of their total care at institutions other than BAMC (the total amount of health care sought exceeds 100 percent because individuals can frequent more than one institution for more than one service). Although

individually not statistically significant because of the number of cases, if all the sources of care other than BAMC are studied, the practical significance shows that approximately half seek 10-20 percent of their care and approximately half seek 90-100 percent of their care from other sources, so those who do not come to BAMC are either going to other sources for all of their care or are seeking very little care. The largest group seeking care from a non-BAMC source for varying amounts of care were those that said they frequent a private physician (11 percent of all respondents). The second largest group were those that reported that they frequent Wilford Hall Medical Center; these accounted for 4.4 percent of the total respondees (refer to Appendix FF).

Respondees who indicated that they seek care from BAMC were predominantly male (77 percent) and accounted for 90 percent of all males who answered the survey (see Appendix GG). The female portion of this population was smaller (23 percent) but similar to the males; 90 percent of all female respondents reported that they seek care at BAMC. In comparison, of the respondees who said that they seek care from a private physician, 81 percent were male and 19 percent were female, the former accounting for 11 percent of the total males that responded to the survey and the latter for 13 percent of the total females.

The highest frequency at which respondees seek care at BAMC is once every six months (48 percent), followed by those that obtain care every other month (20 percent) and those that are seen once each month (12 percent) (see Appendix GG). According to the respondents, private physicians are also frequented the most--once every six months (43 percent), followed by every other month (26 percent) and once per

year (21 percent). In contrast to those that seek care at BAMC, only 6 percent of those who indicated that they seek care from a private physician do so on a once-per-month basis. Of the respondees who were identified as seeking care from a civilian hospital and from Audie L. Murphy Memorial Veterans Administration Hospital, 11 percent of the former seek care at the frequency of once per week and 9 percent of the latter seek care at the rate of once per week. Those respondents who seek care from BAMC at the rate of once per week account for 2 percent of all Army retirees who frequent that facility.

Study indicated that the majority of respondents who seek care at BAMC live within a 5-mile radius of the facility, predominantly located directly adjacent to Fort Sam Houston and on the north and the northeast side. Seventy percent of those respondees who indicated that they seek care at BAMC live in the top eight ZIP codes by Army retiree population size (see Appendix HH). In comparison, of those who indicated that they seek care from a private physician, 65 percent live within these same eight ZIP codes (refer to Appendix R). ZIP Code 78201, which is located to the west and is composed of 2.6 percent of the entire Army retiree population, was noted to contribute 17 percent to the total number of persons who seek care at BAMC, according to the survey. Although this may be representative of the response rate from this ZIP code, this area also holds the second largest group of users of private physician services. Finally, it was noted that ZIP Code 78227, which is located southwest of BAMC, contains the largest user group by ZIP code of outpatient services at Wilford Hall Medical Center.

In terms of age distribution for those respondents who seek care

at BAMC, 69 percent are 61 years of age or more while 11 percent are below the age of 52 (see Appendix II). Those who indicated that they seek private physican care are 61 years of age or more in 71 percent of the cases and below the age of 52 in 12 percent of the cases.

BAMC users indicated that, on retirement, 23 percent were at the rank of E-7/8, 22 percent were at the rank of O-5, and 22 percent were at the rank of O-6 or above. Thirty-seven percent of users of private physicians noted that they were O-6 or above on retirement, while 20 percent were O-5 and 15 percent were E-7/8 (see Appendix JJ). Also, of the respondees who seek care at Wilford Hall, none indicated having retired in the O-6 or above category. Further analysis was conducted to determine if any rank(s) in the O-6 and above group that utilized any nonfederal health care source was statistically independent from other ranks that used these same nonfederal facilities (see Appendix KK). A chi-square analysis utilizing a 2x2 contingency table determined that a relationship does exist between rank and source of care at the .005 level of significance. Twenty-one percent of the respondents who retired at O-6 or above utilize civilian sources of care (HMO, civilian hospital, private physician, minor emergency center, or other) while only 7.6 percent of the respondees that retired at all other ranks seek care from these sources.

The current usage patterns of Army retirees who responded to the survey were also studied among several major outpatient services. As a result of their contribution to hospital workload, the top five outpatient services by percent of admissions and the top ten outpatient services by number of outpatient visits were studied for usage patterns.

Each of these services was evaluated utilizing the formula below and solved for the level of significance:

$$n = \frac{Nz^2pq}{d^2 (N - 1) + z^2pq}$$

where: n = Number of responses

N = Population size determined by utilizing the responses for each question as an indicator of the number of people in the population as a whole that would respond to the question; this percentage was multiplied by the total population to determine N

p = Estimate of true proportion; since this estimate was unknown, 0.5 was used to obtain the largest sample necessary for reliability

q = 1 - p = 0.5

z = Value used to compute level of significance

d = Acceptable width of the difference of the sample proportion from the true population proportion; in this case, plus or minus 0.05 was used.

Responses received from two of the top five admitting services and five of the ten top services by outpatient visits were considered statistically significant (see Appendix LL). Because two services were present in both areas, a total of five outpatient services were reviewed: (1) internal medicine, (2) cardiology, (3) emergency room, (4) dermatology, and (5) optometry.

Given these five top services, on the average, 7 percent of the respondents indicated that they seek care at sources other than BAMC. Just less than half of these individuals seek that care from

a private physician, and the service which is sought the most of these five is internal medicine. Responses indicated that, on the average, 42 percent of those seeking care in these five outpatient areas do so once every six months and that, of those that seek care from a private physician, the majority seek that care at the rate of once per year.

Although statistically not significant due to number of cases, members of ZIP Code 78227, which accounts for 3 percent of the total Army retiree population in Bexar County, seek 45 percent of their care for these outpatient services at Wilford Hall Medical Center. As previously mentioned, residents of ZIP Code 78201, which accounts for 2.6 percent of the total Army retiree population in Bexar County, utilize private physician care more than any other ZIP code group, particularly with regard to internal medicine care (see Appendix MM).

Although statistically not significant due to the number of cases, the respondees in the age group 85-92 years of age are the highest users of Wilford Hall for these five outpatient services. Also, the age group which frequents private physicians the most are 69 to 76 years of age for the same five outpatient services.

Preference. The strongest preference indicator for individuals who are members of some type of prepaid health care system such as the military is satisfaction. Because this aspect was addressed as a separate issue earlier, two other indicators will be discussed.

A general preference statement regarding all outpatient services at Brooke Army Medical Center revealed that 94 percent of all respondees would give consideration to utilizing this facility in the future. No significant differentiation regarding this preference existed according

to sex, but 11 percent of those respondees who seek care once per year did indicate that they would not consider BAMC. Fifty percent of the respondees from ZIP Code 78227 would not use BAMC, and residents of ZIP codes 78223 and 78220 also indicated that outpatient services at BAMC would not be considered (13 percent and 11 percent, respectively). Additionally, age groups 37-44 and 45-52 indicated a negative response (17 percent and 14 percent, respectively). Of practical significance is the fact that, of those respondents who indicated that they receive care from private physicians, the average response across all varying levels of care was that 37 percent would not consider utilizing BAMC outpatient services in the future (see Appendix NN).

Direct monetary costs to the patient are not considered as important an aspect of preference in the military health care system as in the civilian one (except where HMOs are concerned) unless beneficiaries are seeking care at other sources and utilizing alternate payment mechanisms to support that cost. Survey respondents who indicated that civilian care is sought on both an inpatient and an outpatient basis reported that they pay for that care out of pocket in 19 percent of the cases ($p < .01$). Although statistically insignificant, 13 percent of the respondees utilize Medicare, 11 percent seek private insurance supplementation, and 7 percent use CHAMPUS (see Appendix OO).

Potential demand. Results have been presented concerning those respondees who seek care at sources other than BAMC. The implications of these results in terms of demand potential will be discussed in the analysis portion of the discussion.

An area of practical and statistical significance which was

identified in the Familiarity portion of this discussion was related to outpatient programs. Further study was conducted utilizing a 2x2 contingency table for chi-square analysis to determine if a relationship exists between unfamiliarity and ZIP code residence for each of the outpatient programs. Appendix PP lists the results, which show that a statistically significant relationship does exist in cases of familiarity and ZIP Code No. 1 (78209) for the following programs: diabetic diets, weight reduction, men's and women's health issues, low salt diets, stress, oncology support group, and cholesterol diets. It is also important to note that ZIP Code 78209 is the closest in location to Brooke Army Medical Center as well as the most populated by Army retirees.

A composite review of the more practically and more statistically significant results has been presented in this section. The importance and the relevance of this information to the development of a market strategy are left to the analysis.

Footnotes

[1]Roberta N. Clarke and Linda Shyavitz, "Marketing Information and Marketing Research--Valuable Tools for Managers," Health Care Management Review 6 (Winter 1981): 77.

[2]BG Robert H. Buker, MC, Commanding General, Brooke Army Medical Center, Fort Sam Houston, Texas, Briefing Notes, 1985.

[3]Ibid.

[4]Ibid.

[5]Ibid.

[6]Brooke Army Medical Center, Comptroller Division, Uniform Chart of Accounts, Fiscal Years 1984-1985, Fort Sam Houston, Texas.

[7]Brooke Army Medical Center, Medical Summary Report for the Period December, 1984-March, 1985, Fort Sam Houston, Texas.

[8]El Camino Real Health Service Agency, Health Systems Plan for the Camino Real Health Service Area, 1981, San Antonio, Texas, pp. 101-3.

[9]Ibid., p. 105.

[10]Briefing material used during visit by Director, Office of CHAMPUS, Denver, Colorado, 1985.

[11]CHAMPUS, Health Care Summary Report for the Period July 7, 1983-June 30, 1984, No. HAD 85-007, Denver, Colorado, 1985, pp. 1-4.

[12]El Camino Real Health Service Agency, p. 156.

[13]Ibid., pp. 107-8.

[14]Clarke and Shyavitz, pp. 73-77.

[15]Howard S. Rowland and Beatrice L. Rowland, Hospital Administration Handbook (Rockville, Md.: Aspen Systems Corporation, 1984), pp. 40-45.

CHAPTER IV

MARKET ANALYSIS AND RECOMMENDED STRATEGY

> The fittest and the fastest will emerge in good health, and consumers will probably be better served. Institutions will prove that a pro-active, market-driven mode will deliver the same levels of compassion and concern offered in the past. Healthy competition in a free marketplace will once again prove itself, and good marketers will thrive.[1]

Market Analysis

This portion of the study will focus on significant areas evidenced in the Survey Results section and data identified in the Marketing Information portion of this paper. The four key areas of market analysis (product, place, price, and promotion) and an environmental forecast will be used to evaluate research and information together in a manner that leads to the development of a market strategy for Brooke Army Medical Center.

Product

The outpatient services, or health care product, which Brooke Army Medical Center offers its consumers in the Army retiree and survivor population are primarily diagnostic and therapeutic in nature. An evaluation of the need for this product reveals positive results when compared to the levels established by the managers of these outpatient services. Additionally, the levels established by the command group mirror those of the outpatient managers and give credence to the acceptability of need as identified by the survey respondees.

Need for outpatient gynecology services was significant in the analysis because the managers in that service established a level of 0. However, when compared to the levels established by other services and the command group, gynecology service cannot reasonably be considered for expansion or change. Although statistically not significant, when the respondent level for psychiatry is compared to the BAMC manager level prior to analysis, 50 percent of the respondees are found to be seeking care at sources other than BAMC. The practical significance of this figure is important because Group I and II psychiatric services represent 67 percent of the total cost to the government for CHAMPUS in the Fort Sam Houston catchment area. Additionally, although psychiatry is the second most expensive outpatient service because of the low number of outpatients seen by this service, once admitted, psychiatric patients represent the third highest group in terms of average bed days per admission.

An evaluation of consumer usage patterns for the BAMC "product" as well as for services offered by other institutions revealed a group of private-physician users of varying practical and statistical significance. The 11 percent of respondents who seek care from private physicians are predominantly male patients that choose to seek care less frequently than those respondents who indicated that they use BAMC. This group is located in the same top eight ZIP codes as BAMC users and are of the same age. While the aforementioned information is primarily of practical significance, an analysis of rank and source of care was statistically significant at the .005 level. The evaluation revealed that one-fifth of the respondents who retired at the rank of

O-6 or above utilize civilian sources while only 7.6 percent of the respondents who retired at all other ranks seek care from nonfederal sources. A closer evaluation of these consumers revealed that 3.5 percent of all respondents seek care from private physicians in areas covered by the five major services at BAMC, particularly internal medicine.

Satisfaction is a key factor to consider in examining consumer views on products as well as in understanding the attributes that strongly affect consumer choice. Of those indicators used in the survey to measure satisfaction, the following are applicable to the type of service BAMC offers: (1) attitude of the nurses, (2) response to complaints, (3) community reputation, (4) ethnic origin or language of the staff, (5) attitude of the physicians, (6) presence of volunteers, (7) attitude of the administration, and (8) warmth of the general atmosphere. In all eight cases, the levels of dissatisfaction identified by the survey respondents were found to be acceptable in comparisons made with the levels established by BAMC managers. In fact, the respondents rated the overall quality of care provided by BAMC to be completely satisfactory in 73 percent of the surveys.

A nationwide study done by the Department of Defense concerning perceptions of and satisfaction with military versus civilian health care revealed that 26.5 percent of those surveyed were very satisfied (highest choice for satisfaction offered on the survey) with the quality of military care and 31.6 percent were very satisfied with the humaneness of military care. Although these two populations cannot be statistically compared because of the lack of information concerning comparability/homogeneity, it is of practical significance to note that the

respondents from Bexar County appear far more satisfied with the quality of care at BAMC than the military population as a whole. These positive responses are also particularly noteworthy considering the recent adverse comments made by the media concerning the quality of military health care.

Preference for future use of BAMC outpatient services in general was extremely good at 94 percent. Responses from the ninth most populated ZIP code did indicate that 50 percent would not consider utilizing BAMC outpatient services in the future; however, this area was identified earlier as being located close to Wilford Hall and the top user by ZIP code of that facility's services. Although 37 percent of the respondents who indicated that they use private physician care would not consider using BAMC services, 53 percent of this same population reported complete satisfaction with the eight indicators listed above.

It is surmised that Army physicians that were formerly on active duty at BAMC and have subsequently retired continue to treat a significant number of Army retirees and survivors on a private practice basis. In support of this hypothesis is the payment preference of survey respondents to pay out of pocket (19 percent), use private insurance (11 percent), or seek CHAMPUS support (7 percent) for outpatient and inpatient care. Judging by the low number of nonvisit services sought under CHAMPUS for all diagnoses (23 percent of all outpatient professional services), it would be reasonable to assume that the individuals seeking care from former Army physicians on a private basis are referred to BAMC for ancillary care and advanced testing in order to avoid the cost in the civilian sector. This may also account for this population's

satisfaction with BAMC services (lab, X-ray, and pharmacy) on the one hand yet disinterest in seeking outpatient care (direct patient care) from the facility because a private physician is used instead.

Place

The manner in which a product or service is delivered in terms of location, hours, registration procedures, and the like is viewed as an important determinant of accessibility by the consumer. In the evaluation of accessibility, respondents indicated complete satisfaction with indicators for distance, physician availability, and hours at BAMC. Further, indicators that portrayed consumer satisfaction with the facility, such as cleanliness, warmth of the general atmosphere, and odor of the building, were also very favorably received. This point is certainly significant since the physical plant and the age of the BAMC facilities are considered major weaknesses of the institution and a significant hindrance to its ability to provide quality health care for its consumers. Again, in comparison to the nationwide study which indicated that 25.4 percent of the surveyed population was very satisfied with the accessibility to military health care in general, the respondents from Bexar County did not fall below 90 percent complete satisfaction in any of the accessibility indicators mentioned.

In light of The Surgeon General's goal to fully staff the AMEDD's ancillary support services and expand the family practice base, it is crucial that attention be given to accessibility within the system. Also, given the shift in the scope of medical practice to the outpatient setting and the impending use of a diagnoses-related workload measure in the military which will force this type of medical practice, it is

crucial that BAMC have a clear understanding of the attributes of and the deterrents to consumer access in the outpatient setting. This most recent measure of consumer satisfaction in this regard has noted only positive attributes. The one deterrent to the accessibility of patients at BAMC is noted in the following discussion.

Price

Everything Brooke Army Medical Center requires the patient to go through in order to utilize its services must be considered a price to the consumer. Although previous discussion has noted that satisfaction with services is extremely high for most indicators related to price (distance, availability of a physician, and hours), over 40 percent of the respondents were clearly not satisfied with the ease of obtaining appointments through the central appointments service. One hundred surveys were systematically sampled to identify the number one priority established by respondents in an open-ended question concerning recommended changes in BAMC services. Seventy-five percent of the respondents listed central appointments as the first priority for change (significant at the .01 level). In comparison, 11 percent of the respondents reported being not satisfied and 45 percent reported being completely satisfied with the ease of obtaining an appointment from the clinic receptionist.

In light of The Surgeon General's goal to decentralize all appointment systems in the AMEDD and the overwhelming dissatisfaction with the current centralized system at BAMC, it is imperative that this issue be addressed as a perceived deterrent to accessibility within the system. The issue from the consumer's perspective is that, following

numerous attempts to obtain an appointment by calling into the system, he/she is told that no appointments are available. Since 500 consumers each day are told that no appointments are available, many often feel frustration and anger with central appointments in that they feel that the telephoning and answering portions of the system are preventing their access. The issue from the central appointments system's perspective is that only a set number of appointments are available regardless of what type of phone or answering system is utilized. A call sequencing system has recently been implemented to insure that consumers are permitted access to the system in the order in which they call. This provides equity to the system but does not address the perception of inaccessibility noted by the consumer population.

The consumer market views the positive benefits which Brooke Army Medical Center provides (product) under the circumstances in which they are currently offered (place) and will determine if the negative costs (price) are worth paying. Given that certain segments of the population have decided not to pay the price and are seeking care at other sources, it is imperative that perceptions of inaccessibility be addressed in terms of both current users and nonusers of the system. Several recommendations will be presented in the marketing strategy which address this issue.

Promotion

How and what the health care consumer learns about BAMC and the services/programs it offers can be a significant determinant to developing a population's interest in and decision to utilize those

services. An evaluation of the respondents' general awareness of outpatient services was overwhelmingly positive at 97 percent. However, a study of unfamiliarity with programs revealed that respondent levels exceeded those levels established by BAMC managers in all cases.

Since the members of the ZIP codes populated by the greatest number of Army retirees and survivors in Bexar County (13 percent) were noted to be more unfamiliar with outpatient programs than the residents of the other top eight ZIP codes by population size, it is clear that information concerning these programs should be disseminated to insure their success. The manner in which the information is communicated will depend on the objective of the hospital. A potential outcome which could be addressed is changing consumer behavior to a more preventive health approach, or specific market segments could be focused on to promote BAMC and increase possible utilization of specific outpatient programs.

Of the objectives established by a recent executive management seminar for BAMC decision-makers, one was related to the identification and promotion of a single unifying value and another was concerned with disseminating the mission of Brooke Army Medical Center. Both of these deserve consideration in combination with the established levels of unfamiliarity concerning BAMC programs.

Current methods employed to disseminate information concerning BAMC activities are very limited in scope and no emphasis is placed on utilizing the media to develop BAMC's image (or proclaim what consumers feel about its current one) or to promote activities that may identify new markets or redevelop old ones. This institution should be proactive

and not wait to utilize civilian media sources when critical articles are published which require protective responses. Methods to address promotional strategies concerning these issues will be treated in the marketing strategy portion of this paper.

Environmental Forecast

Critical to the formulation of a marketing strategy for Brooke Army Medical Center is an understanding of the trends in both the health care and the consumer environment from the national to the local level. A study entitled Health Care in the 1990s: Trends and Strategies was recently performed by the Arthur Anderson Company in conjunction with the American College of Hospital Administrators. On the national level, the study findings portend a decrease in average length of stay to 6.5 days by 1995 and a 20 percent decrease in hospital patient days per 1,000 people in ten years. The predictions include a substantial increase in ambulatory care, to include a 25 percent share of patient revenues by the Year 1995. The study also follows the predicted rise in the elderly population by calling for a greater need for extended care and rehabilitation facilities. Providers are forecasted to segment the patient care market and introduce product line management and services based on market needs. Additionally, an increased focus on preventive care will occur, and health care institutions will be called upon to conduct more community education programs.[2]

The Surgeon General's goals for the next few years call for increased emphasis in the ambulatory care arena by supporting ancillary personnel resources and expanding the family practice base. Additionally, increased responsiveness to consumer needs by decentralizing

current central appointments systems is emphasized.

Brooke Army Medical Center is already witnessing a slight decrease in occupied beds and an increase in intensive care unit requirements. An economic analysis performed for BAMC in 1983 by a private consulting firm forecasted a 21.6 percent increase in outpatient clinic visits by 1990 for all beneficiaries and a 32.5 percent increase in the retiree population alone.[3] BAMC will have to give consideration to these national and Armywide trends by placing more emphasis on assessing the consumer population's needs in terms of outpatient and preventive care.

At the local level, the Target '90 Commission Report for the City of San Antonio emphasizes that only 3 percent of the city's budget is devoted to human services. In this report, the commission asks the mayor to involve the providers of health and social services in citywide programs for wellness, nutrition, smoking cessation, and other health-related subjects.[4] In light of BAMC's past contribution to the city and the hospital's current community reputation, it clearly will be called upon to support this effort.

The Camino Real HSA predicts that the overall population in the San Antonio catchment area will increase by 500,000, or 42 percent.[5] The northeast quadrant, in which greater than 75 percent of the BAMC retiree population resides, is expected to increase by 10.2 percent according to Bexar County population forecasts established by the San Antonio Department of Planning. A review of the top nine ZIP codes by beneficiary population size reveals population stability through 2005 with some significant increases in ZIP codes 78218 and 78239.[6]

Based on the available information, it can be predicted that the Army retiree and survivor population in the northeast section of Bexar County will continue to grow at a steady rate with some redistribution among ZIP codes as the available plats for single and multifamily units diminish. It is imperative that BAMC continue to monitor those types of predictions that involve its beneficiary population. Since needs assessment is a relatively new approach among most San Antonio hospitals, it behooves Brooke Army Medical Center to keep one step ahead of institutions that may attempt to expand their respective market share of the Army retiree population.

This analysis has combined marketing research results and marketing information together in a synthesized form according to four factors essential to the delivery of health care. Utilizing the environmental forecast, a strategy has been developed which provides for the best possible management of these factors in recommending a viable approach to Brooke Army Medical Center's future standing in the San Antonio health care community.

Recommended Market Strategy

Equipped with an understanding of the entire market picture and the posture of Brooke Army Medical Center within that setting, the final task is to formulate a strategy that can be employed to affirm the hospital's continued success. In order to insure total applicability to the institution under review, the market goals for BAMC were developed with the prerequisites that the market plan (1) be consistent with the mission, (2) build on strengths and competencies, (3) require a minimal capital outlay, (4) be conducted under favorable market conditions,

(5) generate a favorable return, and (6) incur acceptable levels of risk. With these criteria in mind, each goal is supported by a series of recommended strategies, listed in outline form, which were developed based upon product, price, place, promotion, and environmental forecast considerations.

I. Maintain Brooke Army Medical Center's Current Market Share and Establish a Position in the Market.

A. BAMC Product

1. Establish one unifying value, such as Comprehensive Care for the Future, which can be used to identify with advanced technology, a new medical center, and wellness.
2. Utilize survey results concerning consumer preference and satisfaction with care.

B. Price of the BAMC Product

Change the perception that the central appointments system is a deterrent to accessibility; identify appointment limitations to the population and establish a mail-in system that guarantees appointment and immediate response. Similarly to consumer frustration generated by excessive waiting times, if the reason for delay is communicated in a prompt and continuous manner, consumer frustration will be marginal.

C. Promotion of the BAMC Product

1. Utilizing the unifying value, promote stories with local media concerning new technologies, status on new medical center, and consumer evaluation of BAMC care versus national

beneficiary study.

2. Utilizing the unifying value, promote health information (nutrition, smoking, etc.), health education (effect in terms of lifestyle, attitude, medical history, etc.), health maintenance (self-participation in disease prevention and management), and instruction in the use of the system by:
   a. Presenting at the Army Retiree Open House.
   b. Publishing articles in the Army retiree newsletter.
   c. Establishing a newcomer orientation.
   d. Compiling a patient awareness brochure.
   e. Organizing a wellness fair directed at retirees and promoted through media which primarily penetrates the Northeast Side market segment.
3. Utilizing the unifying value, take lead in promoting wellness and establish BAMC as a citywide authority at:
   a. City functions supported by BAMC (e.g., Fiesta and the rodeo).
   b. Sports events and activities (e.g., nutrition care run and wellness fair).
   c. Television and newspaper health spots.

II. Increase Brooke Army Medical Center's Market Share of Army Retirees in Bexar County That Seek Private Practice Physician Care by Utilizing a Differentiated Approach.

A. BAMC Product

1. Utilize the unifying value of Comprehensive Care for the Future in identifying with available levels of care and

wellness aspects, particularly in the top five outpatient services (especially internal medicine).

2. Utilize the survey results concerning consumer preference and satisfaction with care, particularly in the top five outpatient services (especially internal medicine).

B. Price of the BAMC Product

Establish that change in central appointments system is being made in response to consumer request and to enhance accessibility.

C. Promotion of the BAMC Product

Utilizing the unifying value, promote BAMC to target market by:

1. Organizing a retired Army physician day or by inviting this group to a large-scale professional conference that includes focus on wellness and technological/personnel resources and expertise. Focus should be to spur interest and confidence in BAMC, insure that patients are referred for ancillary work-up, and establish professional relations which promote coordinated admission referrals. Approach should be designed to enhance communication, not foster competition.

2. Making presentations to groups such as the Retired Officers Association and the Retired Generals that contain large memberships of retired O-6s or above. Focus should be on state-of-the-art resources and personnel expertise in the top five outpatient services, change in the appointment system/access, survey responses versus those of the nationwide study, and wellness programs.

III. Increase Brooke Army Medical Center's Market Share of Army Retirees in Bexar County That Pay Out of Pocket and Utilize CHAMPUS for Outpatient Services Through the Use of a Differentiated Approach.

A. BAMC Product

1. Utilize the unifying value of Comprehensive Care for the Future to identify with state-of-the-art resources, personnel expertise, and new medical center developments.
2. Utilize the survey results concerning consumer preference and satisfaction with care versus those of the nationwide study.
3. Seek approval and funds initially to pay for CHAMPUS care in the catchment area. Following study and identification of specific care preferences of CHAMPUS users, establish preferred provider type arrangements with designated practitioners. Finally, balance BAMC resources and missions with consumer preferences for care in a mix most advantageous to the institution's success in the future.[7]

B. Price of the BAMC Product

Establish that change in central appointments system is being made in response to consumer request and to enhance accessibility.

D. Promotion of the BAMC Product

1. Utilize the unifying value to promote state-of-the-art resources, personnel expertise, new medical center developments, and central appointments system changes by organizing a patient information sheet to accompany the retiree newsletter.

2. Utilize the survey results to promote the CHAMPUS test in a separate mailer to individuals who currently utilize CHAMPUS (obtain addresses from Office of CHAMPUS in Denver, Colorado) by:
   a. Emphasizing positive aspects of the survey concerning satisfaction and quality of care as levels which BAMC is interested in maintaining.
   b. Acknowledging preference to seek outpatient care at sources other than BAMC. Promote the new test as a method to coordinate care and increase continuity of care between BAMC and other sources.
   c. Advocating reduction in paperwork processing with CHAMPUS when costs are paid by BAMC.
3. Promote the new CHAMPUS test with private practice physicians by stressing eventual determination to seek contractual agreements with alternate care sources. Additionally, ask that a mailer be made available in private practice offices to patients eligible for care at BAMC.

IV. Redistribute Brooke Army Medical Center's Market Share of Army Retirees in Bexar County That Seek Specific Outpatient Services.

A. BAMC Product

1. Utilize the unifying value of Comprehensive Care for the Future to identify with consumer preference patterns evidenced in the survey and stress the willingness of BAMC to maintain current consumer satisfaction levels.
2. Utilize the "assignment" option of the CHAMPUS test to alter

the outpatient case mix in a manner consistent with BAMC resources and more conducive to receiving credit according to the MCCU workload accountability measure by:

a. Closely evaluating the expansion of areas similar to psychiatry which are significant in terms of bed days per admission and serve a population that is seeking a high percentage of outpatient care at alternate sources.

b. Closely evaluating the reduction of areas similar to hematology, nephrology, plastic surgery, and endocrinology which are high cost centers and low contributors to total admissions. Focus should be on referring patients to contracted CHAMPUS providers to insure communication and continuity of care while maintaining an appropriate balance of patients to meet residency requirements.

c. Closely evaluating the ability to shift the practice of medicine and surgery in all services to the outpatient setting while increasing the MCCU measure according to 2a above. Consider the integration of home health care and wellness to this concept.

B. Price and Place BAMC Product Is Sought

Identify outpatient redistribution as conforming with current practice of medicine and as vehicle to increase accessibility to BAMC and civilian providers while maintaining communication and continuity of care.

C. Promotion of the BAMC Product

Given the tasks outlined in A2 above, long-range promotion would be dependent on the results of altering the outpatient case mix. A definitive plan cannot be offered to approach the beneficiary population in the absence of specific information. General attention, however, should be given to the unifying value in emphasizing preference patterns, the changing practice of medicine, and the willingness of BAMC to maintain consumer satisfaction levels by:

1. Informing and educating consumers concerning the location and the manner in which civilian care is to be obtained and used.
2. Persuading the consumers that positive results will be achieved on their behalf concerning accessibility, continuity of care, and satisfaction.

This strategy is intended as an introduction to ambulatory care marketing for Brooke Army Medical Center and does not seek to be a definitive treatise on strategic marketing practices. More importantly, its aim is to stimulate BAMC decision-makers in considering marketing as a worthwhile process that can identify, evaluate, plan for, and manage exchange relationships between the hospital's services/programs and certain consuming publics.

The ultimate effectiveness of any marketing strategy is critically linked to its application in the environment. If properly applied, this marketing strategy can assist in guiding Brooke Army Medical Center in adopting and implementing strategic plans to accomplish its mission

and provide for greater success in the future. The shape which this application should take and the important factors which must be considered are discussed in the concluding remarks of this paper.

Footnotes

[1]Jack Coale, "Hospital Marketing: The Survival Option," Health Services Manager 16 (Spring 1983): 5.

[2]Arthur Anderson and Company, "Health Care in the 1990s: Trends and Strategies" (course presented by the American College of Hospital Administrators, San Antonio, Texas, November 3, 1984), pp. 5, 19, 23, 36.

[3]BG Robert H. Buker, MC, Commanding General, Brooke Army Medical Center, Fort Sam Houston, Texas, Briefing Notes, 1985.

[4]San Antonio Planning Department, The Target '90 Commission Report (San Antonio, Tex.: Van Steenberg Enterprises, Inc., July, 1984), pp. 165-69.

[5]Briefing material used during visit by Director, Office of CHAMPUS, Denver, Colorado, 1985.

[6]San Antonio Planning Department, Data Management Division, Population Forecasts for Bexar County Census Tracts, 1985 through 2005 (San Antonio, Tex.: San Antonio Planning Department, May, 1984), pp. 11-97.

[7]Paul Smith, "Test Will Make Hospital Health Care Overseer," Army Times 45 (1985): 23.

CHAPTER V

CONCLUDING REMARKS

> Many hospitals today suffer from the same malady most businesses suffered from some years ago; they never seem to be able to get it all together. They never get all the functions, all of the troops headed in the same direction. . . . What those hospitals need is a strategy for dealing with the public.[1]

This study has developed a marketing strategy for "dealing with the public" by determining the perceived ambulatory health care need, satisfaction, and familiarity levels of the Army retired population in the Brooke Army Medical Center immediate service area.

A balanced mix of marketing information and marketing research data was created utilizing an accurate picture of the user and the non-user patient population's preferences for hospitalization, perceived need, potential demand, usage patterns, and levels of satisfaction and familiarity with services/programs. An unexpected yet welcome result of the study was the finding that Army retirees are generally very satisfied with the quality of care being provided at BAMC and appear to exhibit minimal requirements for need. The latter result was certainly directed by the levels established by BAMC managers. This may call for a review of the applicability of the Delphi technique to this type of research in the future. Some thought may be given to seeking need, satisfaction, and familiarity levels following compilation and dissemination of respondee levels.

Another recommendation concerning future study is that the

collection period be extended to a two-month time frame. Some 300 surveys were received following the collection period. Depending on the population subgroups under review, additional surveys might have lent statistical significance to some conclusions made on an otherwise practical basis.

Comprehensive and dedicated automation support is also a necessity, without which a study of this magnitude should not be undertaken. Finally, the development of a marketing strategy for an entire medical center is more appropriately performed by a team, or the decision should be made to focus on one or two elements of the organization. In several respects, it seemed an overwhelming task to utilize a survey approach which addressed specific medical services to all users and nonusers of several systems and then to link consumer demographics to attributes of those health care organizations frequented most often for outpatient care.

While the recommended market strategies address specific target markets, in a broader sense, they have been designed to address ongoing issues such as current hospital utilization, future bed size determinations, and negative media coverage of health care quality in the Armed Services. In order to employ strategies with these types of persistent issues, it is important to consider that the environment is subject to constant change. As a result, an external consultant versed in marketing practices and a membership of key hospital decision-makers should review the recommended approaches according to their knowledge of the existing situation and the expectations of how the system and its components will change over time. This necessarily implies

a forecast of what changes will take place and how the factors under consideration will be affected by these changes. Marketing information and marketing research data continue to be critical to this evaluation and should be compiled on a regular basis in order to identify weaknesses in the existing strategies and identify potential new strategies that may benefit the institution.

Brooke Army Medical Center could be the first Armed Services health care institution to employ the dynamics of marketing. By utilizing this strategy, BAMC could benefit from a practical and focused basis for making decisions and identifying the position it wants in the market, the image it wants to project, and the manner in which it intends to achieve a more significant position in some markets while continuing to maintain its current position in others. To continue as a successful organization, Brooke Army Medical Center must stay "close to the customer" and encourage innovative responses to customers' changing needs. This marketing strategy could "get all the troops headed in the same direction" and insure continued success for the future.

Footnotes

[1]Robert Rubright and Dan MacDonald, Marketing Health and Human Services (Rockville, Md.: Aspen Systems Corporation, 1981), p. 158.

APPENDIX A

BROOKE ARMY MEDICAL CENTER

MISSION STATEMENT

Mission Statement of the Center:

a. Maintains and operates 713 hospital beds for definitive inpatient treatment, including all phases of medical, surgical, and neuropsychiatric care. Provides medical facilities and support to severely burned and injured military patients, or those requiring formidable surgery or definitive care who are transferred from other Army hospitals. Provides care for selected civilians who have been severely burned. Provides medical support to Veterans Administration as required.

b. Provides consultative service and support within the region. Provides special staff consisting of personnel who advise and perform functions pertaining to specified activities.

c. Renders outpatient medical, surgical, neuropsychiatric, and dental care to authorized personnel.

d. Provides professional ancillary services in support of hospital and clinical services.

e. Performs physical examinations (routine and special) for military and other authorized personnel. Processes TDRL and outpatient medical boards.

f. Provides dental diagnosis, care, treatment, and consultation services to active duty personnel and eligible beneficiaries.

g. Provides comprehensive veterinary service in support of food hygiene, quality assurance, public health, animal medicine, and the DOD Dog Center.

h. Provides diagnostic and reference laboratory support.

i. Provides comprehensive social services to patients and their families. Maintains liaison with the local military and civilian community agencies.

j. Provides services pertaining to programming, budgeting, accounting review and analysis, internal review, management assistance, commercial activities, Uniform Chart of Accounts, and Uniform Staffing Methodologies.

k. Supervises the execution of manpower plans, organization and functions, programs and policies, and maintains TAADS to include attached units. Supervises and controls the civilian personnel management program. Maintains liaison with CPO and operating officials.

l. Provides for the computation of requirements, acquisition, storage, and distribution of supplies and equipment. Directs and maintains the medical portion of the installation stock fund to meet the needs of the consumer. Directs the materiel quality control program. Provides or arranges for the procurement of miscellaneous logistical services. Operates an optical laboratory which provides single vision spectacles and inserts for protective masks for the US Army, US Air Force, and other authorized personnel. Acts as liaison for real property.

m. Provides patient administration services, acting as custodian of clinical records, patient admissions, discharges, air movement, and clinical records library. Provides treasurer functions, Physical Evaluation Board liaison, and CHAMPUS advisor service. Processes civilian medical claims for medical and dental care obtained from a civilian source by military personnel located within 58 counties beyond Fort Sam Houston.

n. Provides comprehensive nutritional care to patients and personnel authorized to subsist in Nutrition Care Division facilities.

o. Provides effective and efficient management of preventive medicine resources and programs.

p. Provides overall automation management to administrative, professional, and clinical elements.

q. Provides and coordinates medical physics support to the various clinical elements.

r. Operates a blood donor center for the collection, processing, and shipment of whole blood on a sustained basis.

s. Provides certain professional, administrative, and logistic support to attached units (ADL, ISR and DENTAC), HSC, AHS, AMEDD Personnel Procurement Office, and other activities/agencies per ISSA/MOU.

t. Serves as a single center for future medical reevaluation of repatriated prisoners of war and their primary next of kin, as required.

u. Prepares all mobilization, emergency and contingency plans, monitors military training requirements, executes selected training programs, and provides audiovisual support.

v. Performs medical audit functions for the purpose of upgrading the quality of medical education and monitors the proficiency of medical officers.

w. Provides medical education/training in the following areas:

(1) Graduate medical education in numerous specialties.

(2) Officer/enlisted didactic and/or Phase II.

(3) Clinical training to medical students under Army sponsorship and through affiliation agreements with civilian institutions.

(4) Clinical training to veterinary and optometry students enrolled in the Army Health Profesional Scholarship Program.

(5) Residency and intern training in Health Care Administration, Pharmacy, Dietetics, and Clinical Pastoral Education.

APPENDIX B

BROOKE ARMY MEDICAL CENTER ADMISSIONS, DAILY AVERAGE

BROOKE ARMY MEDICAL CENTER

ADMISSIONS-DAILY AVERAGE

	TOTAL	MILITARY	PERCENT	ALL DEPENDENTS	PERCENT	RETIRED/OTHERS	PERCENT
FY 75	39.5	8.5	21	13.7	35	17.3	44
FY 76	38.9	8.6	22	12.8	33	17.5	45
FY 77	45.8	8.4	18	23.6	52	13.8	30
FY 78	45.4	9.5	21	24.9	55	11.0	24
FY 79	47.4	10.1	21	25.7	54	11.6	25
FY 80	50.0	11.4	23	25.8	51	12.8	26
FY 81	55.7	12.2	22	27.1	49	16.4	29
FY 82	54.0	9.8	18	27.5	51	16.7	31
FY 83	53.8	10.1	19	27.5	51	16.3	30
FY 84	53.2	9.2	17	27.7	52	16.3	31

APPENDIX C

BROOKE ARMY MEDICAL CENTER BEDS

OCCUPIED, DAILY AVERAGE

BROOKE ARMY MEDICAL CENTER

BEDS OCCUPIED-DAILY AVERAGE

	TOTAL	MILITARY	PERCENT	ALL DEPENDENTS	PERCENT	RETIRED/OTHERS	PERCENT
FY 75	475	172.9	36	161.4	34	140.7	30
FY 76	475	179.5	38	169.7	36	131.8	26
FY 77	482	175.7	36	166.8	35	132.8	29
FY 78	515	191.0	37	176.2	34	147.8	29
FY 79	576	219.1	38	198.7	35	158.2	27
FY 80	529	187.8	35	192.6	36	148.6	29
FY 81	522	169.6	33	188.6	36	163.8	31
FY 82	520	154.6	30	192.8	38	172.6	33
FY 83	501	150.1	30	187.8	38	163.1	32
FY 84	497	139.3	28	185.7	37	171.7	35

APPENDIX D

BROOKE ARMY MEDICAL CENTER LENGTH OF STAY IN DAYS

BROOKE ARMY MEDICAL CENTER

LENGTH OF STAY-DAYS

	TOTAL	MILITARY	ALL DEPENDENTS	RETIRED/OTHERS
FY 75	12.0	20.3	6.7	11.8
FY 76	12.2	21.0	6.5	11.4
FY 77	10.5	20.8	6.7	10.5
FY 78	11.0	20.0	6.9	11.2
FY 79	12.0	22.0	7.3	10.8
FY 80	10.4	16.5	7.5	11.0
FY 81	9.4	13.9	7.0	10.0
FY 82	9.6	15.8	7.0	10.4
FY 83	9.3	15.0	6.8	9.9
FY 84	9.3	15.1	6.7	10.6

APPENDIX E

BROOKE ARMY MEDICAL CENTER MEDICAL CARE AND HOSPITAL COMPOSITE UNIT

BROOKE ARMY MEDICAL CENTER

	MEDICAL CARE COMPOSITE UNIT (MCCU)	HOSPITAL COMPOSITE UNIT (HCU)
FY 75	1859	900
FY 76	1824	892
FY 77	1725	969
FY 78	1722	999
FY 79	1829	1078
FY 80	1916	1054
FY 81	2013	1106
FY 82	2029	1087
FY 83	2057	1065
FY 84	1993	1054

APPENDIX F

BROOKE ARMY MEDICAL CENTER
TOTAL CLINIC VISITS

BROOKE ARMY MEDICAL CENTER

TOTAL CLINIC VISITS

FY	TOTAL	MONTHLY AVERAGE	DAILY AVERAGE
75	1,166,667	97,222	3,196
76	1,133,607	94,467	3,106
77	920,007	76,667	2,520
78	880,110	73,342	2,411
79	913,230	76,102	2,502
80	1,048,246	87,354	2,872
81	1,103,827	91,986	3,024
82	1,145,857	95,488	3,139
83	1,207,361	100,613	3,308
84	1,146,209	95,517	3,132

APPENDIX G

BROOKE ARMY MEDICAL CENTER OUTPATIENT VISITS, FIRST QUARTER, FISCAL YEAR 1984-FIRST QUARTER, FISCAL YEAR 1985

OUTPATIENT VISITS, BAMC

1ST QUARTER, FY 84-1ST QUARTER, FY 85

Service	1st QTR FY 84	2nd QTR FY 84	3rd QTR FY 84	4th QTR FY 84	1st QTR FY 85
1. Emergency Room	9698	10397	10935	11161	10610
2. Acute Minor Illness Clinic					
3. Physical Therapy	19546	22259	20217	18644	19459
4. Occupational Therapy	7097	6555	6627	6504	6234
5. Nutritional	1415	1697	2159	1679	1916
6. Allergy	5699	6107	6227	5646	5900
7. Cardiology	5986	6221	7657	6384	6339
8. Dermatology	8326	9901	9794	9051	8620
9. Endocrinology	848	860	1108	817	638
10. Gastro-enterology	2873	2895	2581	2869	2582
11. Hematology	55	48	202	41	32
12. Infectious Disease					
13. Nephrology	1647	1672	2205	1765	2013
14. Pulmonary/Respiratory	1280	1148	2716	1338	1290
15. Urology	3478	4106	4286	4115	3647
16. Rheumatology	917	784	451	672	782
17. Gynecology	7779	7952	7934	8363	7673
18. Psychiatry	267	367	307	237	332
19. Speech Pathology	210	434	534	461	304
20. Ear, Nose, & Throat	3630	3906	4279	4225	3336
21. General Surgery	2443	2686	2777	2634	2294
22. Neuro-Surgery	335	699	1191	1203	1490
23. Thoracic Surgery	1093	1241	1367	974	864
24. Plastic Surgery	353	568	621	409	446
25. Orthopedics	4210	4831	5303	4776	4110
26. Ophthalmology	4487	4596	4370	4306	4364
27. Optometry	8507	9084	8703	8985	8316
28. Internal Medicine	14782	16974	16121	16531	15756
29. Neurology	3086	2340	2254	2203	2137
30. Oncology	4732	5603	6316	5207	4574
31. Podiatry	2039	2442	2271	1830	1609
32. Audiology	3102	3226	3926	3596	2745
33. Social Work	2807	2049	2874	2871	2572

APPENDIX H

BROOKE ARMY MEDICAL CENTER TOTAL EXPENSES BY OUTPATIENT SERVICE, FIRST QUARTER, FISCAL YEAR 1984-FIRST QUARTER, FISCAL YEAR 1985

TOTAL EXPENSES BY OUTPATIENT SERVICE, BAMC

1ST QUARTER, FY 84-1ST QUARTER, FY 85

Service	1st QTR FY 84	2nd QTR FY 84	3rd QTR FY 84	4th QTR FY 84	1st QTR FY 85
1. Emergency Room	773632	743965	743741	829118	779242
2. Acute Minor Illness Clinic					
3. Physical Therapy	320616	310438	322407	322655	320246
4. Occupational Therapy	172495	173591	166389	134942	140543
5. Nutritional	16975	18802	19944	21092	21952
6. Allergy	113672	135612	121865	122642	122793
7. Cardiology	343102	290838	337500	314461	294924
8. Dermatology	296422	360263	361226	310685	420420
9. Endocrinology	85215	104988	93618	107041	125215
10. Gastro-enterology	145891	165090	144405	162410	186899
11. Hematology	45541	43803	33830	51344	40848
12. Infectious Disease					
13. Nephrology	182074	211913	220204	234153	267572
14. Pulmonary/Respiratory	73731	90866	92350	80900	79731
15. Urology	194496	224300	248944	285753	302552
16. Rheumatology	46545	51140	41567	43338	59874
17. Gynecology	161390	185582	187165	195118	211630
18. Psychiatry	27891	53032	20761	20450	50926
19. Speech Pathology	19486	13117	22707	12345	15090
20. Ear, Nose, & Throat	163920	187262	206940	211421	295655
21. General Surgery	139652	164493	154403	142792	242325
22. Neuro-Surgery	43930	52419	53755	21429	11721
23. Thoracic Surgery	42082	21409	59033	48263	38243
24. Plastic Surgery	42312	52031	44733	50492	35524
25. Orthopedics	215697	256447	250302	259483	263245
26. Ophthalmology	169253	201342	179014	202630	239211
27. Optometry	213479	250318	261433	242261	21572
28. Internal Medicine	499595	539195	543989	552995	534596
29. Neurology	83435	87230	93330	102555	101352
30. Oncology	200469	253498	235520	229695	206053
31. Podiatry	61811	70534	63656	74565	87991
32. Audiology	39144	89143	95014	85829	83305
33. Social Work	116021	115636	118204	128320	121848

APPENDIX I

BROOKE ARMY MEDICAL CENTER COST PER OUTPATIENT VISIT, FIRST QUARTER, FISCAL YEAR 1984- FIRST QUARTER, FISCAL YEAR 1985

COST TO BAMC PER OUTPATIENT VISIT

1ST QUARTER, FY 84-1ST QUARTER, FY 85

Service	1st QTR FY 84	2nd QTR FY 84	3rd QTR FY 84	4th QTR FY 84	1st QTR FY 85	Average
1. Emergency Room	79.27	71.58	68.01	74.20	73.26	73.4
2. Acute Minor Illness Clinic						
3. Physical Therapy	13.84	13.94	14.73	16.93	16.50	14.8
4. Occupational Therapy	24.30	26.46	25.46	20.74	22.50	23.9
5. Nutritional	11.99	11.07	9.23	12.56	11.45	11.3
6. Allergy	19.94	22.63	19.57	22.60	20.81	21.1
7. Cardiology	57.31	62.82	43.42	49.20	46.52	51.8
8. Dermatology	35.60	36.38	36.88	42.32	43.77	38.4
9. Endocrinology	101.07	122.07	89.02	118.74	118.67	109.9
10. Gastro-enterology	50.78	57.02	55.94	56.95	78.38	58.6
11. Hematology	828.01	912.56	117.97	1252.29	1276.50	877.5
12. Infectious Disease						
13. Nephrology	110.54	126.74	99.86	132.66	132.42	120.5
14. Pulmonary/Respiratory	57.60	62.75	30.32	60.46	61.80	54.6
15. Urology	55.92	54.62	56.67	54.56	82.95	61
16. Rheumatology	50.75	65.22	68.16	68.57	76.56	70.7
17. Gynecology	20.74	23.33	23.58	23.09	27.58	23.7
18. Psychiatry	104.46	144.50	100.16	120.04	153.34	124.5
19. Speech Pathology	62.05	71.69	43.32	37.62	49.60	52.9
20. Ear, Nose, & Throat	45.08	47.94	48.16	50.04	85.62	55.4
21. General Surgery	57.16	61.24	55.60	55.73	105.63	67.1
22. Neuro-Surgery	131.13	74.99	70.20	59.37	95.65	78.1
23. Thoracic Surgery	39.41	57.54	43.18	49.55	148.42	67.6
24. Plastic Surgery	119.86	91.60	80.08	123.75	169.33	116.9
25. Orthopedics	51.23	53.80	48.10	54.43	63.95	54.3
26. Ophthalmology	37.72	43.80	36.25	47.05	54.67	44
27. Optometry	25.09	27.55	30.64	46.29	37.91	29.5
28. Internal Medicine	33.79	31.76	32.24	33.45	33.93	33.3
29. Neurology	27.03	37.27	41.10	40.46	48.26	39
30. Oncology	42.36	48.61	37.29	43.57	45.09	47.5
31. Podiatry	30.31	37.28	30.91	30.06	54.68	32.8
32. Audiology	25.19	26.40	25.09	32.50	30.36	26.2
33. Social Work	59.50	60.88	64.09	62.12	71.40	63.8

APPENDIX J

BROOKE ARMY MEDICAL CENTER SERVICES BY ADMISSIONS, BED DAYS, BED DAYS PER ADMISSION, AND PERCENT OF TOTAL HOSPITAL ADMISSIONS, DECEMBER, 1984-MARCH, 1985

BAMC OUTPATIENT SERVICES BY ADMISSIONS, BED DAYS, BED DAYS PER ADMISSION AND PERCENT OF TOTAL HOSPITAL ADMISSIONS, DECEMBER, 1984, AND JANUARY, 1985

Service	December 1984				January 1985			
	Adm.	Bed Days	Bed Days/ Adm.	% of Total Adms (1239)	Adm.	Bed Days	Bed Days/ Adm.	% of Total Adms (1739)
1. Emergency Room								
2. Acute Minor Illness Clinic								
3. Physical Therapy								
4. Occupational Therapy								
5. Nutritional								
6. Allergy								
7. Cardiology	90	782	8.7	7.3	156	1084	9	8.9
8. Dermatology	4	48	12	.3	4	76	13.8	.2
9. Endocrinology	0	10	0	0	1	25	12.5	.12
10. Gastro-enterology	133	657	4.9	10.7	165	739	4.5	9.5
11. Hematology					1	15	15	.06
12. Infectious Disease					0	0	0	
13. Nephrology					4	55	13.8	.23
14. Pulmonary/Respiratory	0	0	0	0	1	11	11	.06
15. Urology	43	342	8.0	3.5	80	507	6.3	4.6
16. Rheumatology	1	11	11	.08				
17. Gynecology	63	419	6.7	5.1	102	480	4.7	5.8
18. Psychiatry	10	214	21	.8	21	231	11	1.2
19. Speech Pathology								
20. Ear, Nose, & Throat	70	537	7.7	5.6	78	562	7.2	.05
21. General Surgery	140	1279	9.2	11.3	174	1343	7.7	.10
22. Neuro-Surgery	31	703	22.7	2.5	55	985	17.9	3
23. Thoracic Surgery	19	368	19.4	1.5	34	614	18.1	1.0
24. Plastic Surgery	16	179	11.2	1.3	23	225	9.8	1.3
25. Orthopedics	79	1048	13.3	6.4	102	1208	11.8	5.9
26. Ophthalmology	34	171	5.1	2.7	43	248	5.8	2.8
27. Optometry								
28. Internal Medicine	166	1966	11.8	13.4	240	2165	9	13.8
29. Neurology	11	141	12.8	.88	11	156	14	.6
30. Oncology	69	962	13.9	5.6	107	1031	9.6	6.2
31. Podiatry	6	55	9.2	.5	8	73	9	.5
32. Audiology								
33. Social Work								

BAMC OUTPATIENT SERVICES BY ADMISSIONS, BED DAYS, BED DAYS PER ADMISSION, AND PERCENT OF TOTAL HOSPITAL ADMISSIONS, FEBRUARY AND MARCH, 1985

Service	February 1985				March 1985			
	Adm.	Bed Days	Bed Days/ Adm.	% of Total Adm. (1565)	Adm.	Bed Days	Bed Days/ Adm.	% of Total Adm. (1684)
1. Emergency Room								
2. Acute Minor Illness Clinic								
3. Physical Therapy								
4. Occupational Therapy								
5. Nutritional								
6. Allergy								
7. Cardiology	135	1133	8.4	8.6	139	1311	9.4	8.2
8. Dermatology	3	45	15	.2	7	76	10.9	.4
9. Endocrinology	4	89	22.3	.3	4	21	5.3	.2
10. Gastro-enterology	168	760	4.5	10.7	138	835	4.7	10.6
11. Hematology								
12. Infectious Disease								
13. Nephrology	2	30	15	.13	3	34	11.3	.18
14. Pulmonary/Respiratory	1	1	1	.06	6	83	13.8	.36
15. Urology	55	422	7.7	3.5	77	531	6.9	4.6
16. Rheumatology	1	1	1	.06	0	0	0	0
17. Gynecology	99	652	6.6	6.3	106	596	5.6	6.3
18. Psychiatry	9	261	29	.58	13	134	10.3	.77
19. Speech Pathology								
20. Ear, Nose, & Throat	85	611	7.2	5.4	69	588	8.5	4.1
21. General Surgery	152	1192	7.8	9.7	202	1545	7.7	12
22. Neuro-Surgery	35	778	22.2	2.2	42	903	21.5	2.5
23. Thoracic Surgery	38	644	17	2.4	48	685	14.3	2.9
24. Plastic Surgery	20	191	9.6	1.2	27	206	7.6	1.6
25. Orthopedics	116	1580	13.6	7.4	86	1322	15.4	5.1
26. Ophthalmology	33	162	4.9	2.1	41	178	4.3	2.4
27. Optometry								
28. Internal Medicine	195	2021	10.4	12.4	199	1795	9.0	11.8
29. Neurology	12	309	25.8	.77	4	178	44.5	.2
30. Oncology	71	759	10.7	4.5	95	947	10	5.6
31. Podiatry	10	78	7.8	.64	12	83	6.9	.7
32. Audiology								
33. Social Work								

APPENDIX K

BROOKE ARMY MEDICAL CENTER OUTPATIENT SERVICE AVERAGE ADMISSIONS, AVERAGE BED DAYS, AVERAGE BED DAYS PER ADMISSION, AND PERCENT OF TOTAL HOSPITAL ADMISSIONS, DECEMBER, 1984-MARCH, 1985

BAMC OUTPATIENT SERVICE AVERAGE ADMISSIONS, AVERAGE BED DAYS, AVERAGE BED DAYS PER ADMISSION, AND PERCENT OF TOTAL HOSPITAL ADMISSIONS, DECEMBER, 1984-MARCH, 1985

Service	Average Admissions	Average Bed Days	Average Bed Days per Admission	% of Total Adm. (4-Month Average)
1. Emergency Room				
2. Acute Minor Illness Clinic				
3. Physical Therapy				
4. Occupational Therapy				
5. Nutritional				
6. Allergy				
7. Cardiology	130	1078	8.4	8.3
8. Dermatology	4.5	60	14	.28
9. Endocrinology	3.3	45	13.4	.21
10. Gastro-enterology	161	748	4.7	16.4
11. Hematology	25	3.75	15	.06
12. Infectious Disease	0	0	0	0
13. Nephrology	3	36	13.4	.78
14. Pulmonary/Respiratory	2.6	32	8.6	.16
15. Urology	63.8	450	7.3	4.1
16. Rheumatology	1	6	5	.07
17. Gynecology	97.5	536	5.4	5.9
18. Psychiatry	13.3	210	18.	2.3
19. Speech Pathology	0	0	0	0
20. Ear, Nose, & Throat	75.5	575	7.7	3.8
21. General Surgery	167	1340	8.1	10.8
22. Neuro-Surgery	40.8	842	21	2.6
23. Thoracic Surgery	14.8	578	17.4	1
24. Plastic Surgery	21.5	200	9.6	1.5
25. Orthopedics	95.8	1290	13.5	6.2
26. Ophthalmology	37.8	190	5	2.5
27. Optometry	0	0	0	0
28. Internal Medicine	200	1986	10	12.9
29. Neurology	9.5	196	24.3	.6
30. Oncology	85.5	924	11	5.5
31. Podiatry	9	72	8.2	.6
32. Audiology				
33. Social Work				

APPENDIX L

BROOKE ARMY MEDICAL CENTER CATCHMENT AREA

ACUTE CARE HOSPITAL BED CAPACITY

BAMC CATCHMENT AREA ACUTE CARE HOSPITAL BED CAPACITY

County	Hospital	Bed Capacity		
		Licensed	Set-up to Staffed	Real
CIVILIAN				
Atascosa	Mercy Hospital	65	65	65
Bexar	Alamo General	45	45	45
	Baptist Memorial	688	688	688
	N.E. Baptist	190	190	190
	S.E. Baptist	190	190	190
	Bexar County Hospital Dist.	564	485	564
	Robert B. Green Hospital*	60	60	60
	Lutheran General	248	192	212
	Metropolitan General	273	273	270
	Nix Memorial	208	183	199
	Park North	100	100	100
	St. Benedict's	35	18	30
	St. Lukes Lutheran	162	148	162
	San Antonio Community	416	329	416
	Santa Rosa	814	729	797
	Villa Rosa	284	271	284
	S.W. General	166	166	166
	S.W. Texas Methodist	487	422	487
Comal	McKenna Memorial	86	84	84e
Guadalupe	Guadalupe Valley	69	65	65e
Kendall	Comfort Community	23	22	22e
Wilson	Floresville Memorial	44	44	44
	Subtotal Civilian Beds	5,217	4,769	5,140
FEDERAL				
Bexar	Audie Murphy VA	670	670	670
	Brooke Army Medical Center	692	692	692
	Wilford Hall Medical Center	1,000	1,000	1,000
	Subtotal Federal Beds	2,362	2,362	2,362
	TOTAL AREAWIDE	7,579	7,131	7,502

e = estimated

* Robert B. Green Hospital is part of the Bexar County Hospital District.

Source: Health Systems Plan for the Camino Real Health Service Area.

APPENDIX M

SAN ANTONIO CATCHMENT AREA 1980

REAL BED CAPACITIES

1980 REAL BED CAPACITIES

County	Hospital	Medical/ Surgical	Obstetrics	Pediatrics	Psychiatry	Other	Tot
CIVILIAN							
Atascosa	Mercy Hospital	55	6	4	-	-	
Bexar	Alamo General	43	-	2	-	-	
	Baptist Memorial	567	33	44	44	-	
	N.E. Baptist	170	10	10	-	-	
	S.E. Baptist	170	10	10	-	-	
	Bexar County Hospital Dist.	440	62	74	48	-	
	Lutheran General	141	16	31	24	-	
	Metropolitan General	250	20	-	-	-	
	Nix Memorial	194	5	-	-	-	
	Park North	48	-	-	52	-	
	St. Benedict's	30	-	-	-	-	
	St. Lukes Lutheran	162	-	-	-	-	
	San Antonio Community	416	-	-	-	-	
	Santa Rosa	545	28	224	-	-	
	Villa Rosa	-	-	-	254	30	
	S.W. General	166	-	-	-	-	
	S.W. Texas Methodist	424	43	20	-	-	
Comal	McKenna Memorial	67	13	4	-	-	
Guadalupe	Guadalupe Valley	53	12	-	-	-	
Kendall	Comfort Community	20	2	-	-	-	
Wilson	Floresville Memorial	31	7	-	-	6	
	Subtotal Civilian	3,992	267	423	422	36	5,
FEDERAL							
Bexar	Audie Murphy VA	490	-	-	180	-	
	Brooke Army Medical Center	597	19	32	44	-	
	Wilford Hall Medical Center	816	41	72	71	-	1,
	Subtotal Federal	1,903	60	104	295	-	2,
	TOTAL AREAWIDE	5,895	327	527	717	36	7,

Source: Camino Real Health Service Agency

APPENDIX N

SAN ANTONIO CATCHMENT AREA 1980 OCCUPANCY RATES BASED ON REAL BED CAPACITY

OCCUPANCY RATES BASED ON REAL BED CAPACITY - 1980

County	SERVICE						
	Medical/ Surgical	Specialty*	Obstetrics	Pediatrics	Psychiatry	Rehabilitation	Total
Atascosa	79.8	-	50.9	57.3	-	-	75.7
Bexar							
Civilian	68.7	65.9	81.9	58.0	69.3	58.9	67.9
Federal	81.3**	-	72.6	45.5	84.0	97.1	75.9
Comal	79.9	-	47.8	-	-	-	75.0
Guadalupe	74.1	-	49.5	-	-	-	72.4
Kendall	36.2	-	3.42	-	-	-	33.25
Wilson	51.0	-	23.4	-	-	75.9	50.0
TOTAL	71.0		76.3	55.1	75.3	77.75	70.35

* Includes medical/surgical special care beds (ICU/CCU), except where noted.

** Includes speciality services.

APPENDIX O

SAN ANTONIO CATCHMENT AREA

1980 INPATIENT WORKLOAD

1980 CATCHMENT AREA INPATIENT WORKLOAD

COUNTY	CIVILIAN HOSPITALS[1]	FEDERAL HOSPITALS[2]	TOTAL
Admissions			
Atascosa	3,153	-	3,153
Bexar	167,583	61,189	228,772
Comal	4,156	-	4,156
Guadalupe	3,767	-	3,767
Kendall	397	-	397
Wilson	1,535	-	1,535
TOTAL	180,591	61,189	241,780
Patient Days			
Atascosa	17,968	-	17,968
Bexar	1,203,513	662,250	1,865,763
Comal	22,985	-	22,985
Guadalupe	17,186	-	17,186
Kendall	2,670	-	2,670
Wilson	8,022	-	8,022
TOTAL	1,272,344	662,250	1,934,594
Average Length of Stay			
Atascosa	5.7	-	5.7
Bexar	7.2	10.8	8.2
Comal	5.5	-	5.5
Guadalupe	4.6	-	4.6
Kendall	6.7	-	6.7
Wilson	5.2	-	5.2
TOTAL	7.1	10.8	8.0

1 Camino Real HSA 1980 Hospital Inventory.

2 Texas Department of Health 1980 Hospital Data Questionnaire for Wilford Hall and Audie Murphy VA, and Report 1, U.S. Army Patient Administration System and Biostatistics Activity for BAMC.

APPENDIX P

CHAMPUS HEALTH CARE SERVICES, FORT SAM HOUSTON CATCHMENT AREA, FISCAL YEAR 1984

CHAMPUS HEALTH CARE SERVICES
FORT SAM HOUSTON CATCHMENT AREA
FY 1984*

OUTPATIENT SERVICES

NUMBER OF PATIENTS	4,025
NUMBER OF VISITS	34,976
NUMBER OF NON VISIT SERVICES	11,012
TOTAL GOVERNMENT COST	$2,228,245
TOTAL GOVERNMENT AND PATIENT COSTS	$3,217,240
AVERAGE GOVERNMENT COST PER VISIT	$63.17

*SOURCE DOCUMENT: CHAMPUS REPORT #HRO 85-007

APPENDIX Q

CHAMPUS HEALTH CARE SUMMARY BY PRIMARY DIAGNOSIS

BASED ON CARE RECEIVED FROM JULY 1, 1983,

THROUGH JUNE 30, 1984, FOR

FORT SAM HOUSTON, TEXAS

CHAMPUS HEALTH CARE SUMMARY BY PRIMARY DIAGNOSIS
MODE 7 (70;BENEFICIARY 6-DIGIT ZIP) BASED ON CARE RECEIVED FROM 01/07/83 THRU 30/06/84 FOR
109 - FT SAM HOUSTON, TX

CATEGORY OF CARE - INTERNAL MEDICINE

	ADVERSE REACTIONS	ALLERGY	CARDIOLOGY (VASCULAR DISEASE)	DERMATOLOGY	ENDOCRINOLOGY	GASTRO-ENTEROLOGY	HEMATOLOGY
I INPATIENT HOSPITAL SERVICES							
USER BENEFICIARIES	11	5	86	4	10	31	8
DEPNT OF ACT DUTY SPONSOR	4	0	6	1	2	7	1
RETIREE	3	0	24	0	0	6	0
DEPNT OF RET OR DEC SPONSOR	2	0	36	0	0	10	1
TOTAL HOSPITAL ADMISSIONS	12	1	69	1	1	33	1
HOSPITAL DAYS	56	4	664	5	10	255	21
AVERAGE LENGTH OF STAY (DAYS)	4.67	4.00	9.62	5.00	10.00	7.72	21.00
AVERAGE DAILY PATIENT LOAD	0.15	0.01	1.82	0.01	0.03	0.70	0.06
TOTAL GOVERNMENT COST	29,006	14,791	349,870	4,269	11,290	40,243	52,919
TOTAL PATIENT COST	7,012	6,659	269,977	7,700	10,448	73,493	696
TOTAL GOVT AND PATIENT COST	36,018	21,452	619,847	12,638	21,738	113,736	53,615
AVG GOVT COST PER ADMISSION	2,417.17	2,113.29	5,844.73	985.80	1,129.00	1,220.39	17,216.67
AVG GOVT COST PER DAY	517.96	360.89	526.91	94.79	225.80	157.89	2,519.95
II INPATIENT PROFESSIONAL SERVICES							
USER BENEFICIARIES	22	12	114	12	15	26	4
DEPNT OF ACT DUTY SPONSOR	5	1	15	1	3	8	1
RETIREE	3	0	13	1	3	3	0
DEPNT OF RET OR DEC SPONSOR	14	0	40	4	3	13	1
NUMBER OF VISITS	38	9	620	32	81	225	12
NUMBER OF NON-VISIT SERVICES	113	22	1,039	20	53	453	42
TOTAL GOVERNMENT COST	3,833	2,765	178,424	2,000	4,434	11,770	1,534
TOTAL PATIENT COST	1,617	1,255	92,759	337	4,220	11,826	520
TOTAL GOVT AND PATIENT COST	5,449	4,020	271,183	6,337	8,654	23,596	2,054
III TOTAL INPATIENT SERVICES							
USER BENEFICIARIES	27	13	137	14	19	45	7
DEPNT OF ACT DUTY SPONSOR	7	1	17	0	2	13	1
RETIREE	4	0	71	1	5	9	0
DEPNT OF RET OR DEC SPONSOR	16	0	49	5	10	24	1
TOTAL GOVERNMENT COST	32,838	17,555	528,294	7,729	15,724	52,033	54,453
TOTAL PATIENT COST	8,629	7,914	362,737	11,246	14,666	85,219	1,417
TOTAL GOVT AND PATIENT COST	41,467	25,473	891,031	18,975	30,392	137,252	55,870
AVG GOVT COST PER ADMISSION	2,736.50	2,507.86	5,605.43	1,545.80	1,572.40	1,626.03	18,151.00
AVG GOVT COST PER DAY	586.39	428.17	795.62	148.63	314.48	204.05	2,593.00
IV OUTPATIENT PROFESSIONAL SERVICES							
USER BENEFICIARIES	97	126	317	205	98	171	21
DEPNT OF ACT DUTY SPONSOR	45	59	129	53	19	46	6
RETIREE	9	17	124	46	33	33	5
DEPNT OF RET OR DEC SPONSOR	43	59	160	110	53	93	12
NUMBER OF VISITS	110	644	1,012	264	310	869	44
NUMBER OF NON-VISIT SERVICES	351	259	1,184	478	536	774	104
TOTAL GOVERNMENT COST	10,381	14,696	46,065	32,284	14,360	108,578	3,869
TOTAL PATIENT COST	8,857	10,135	36,933	18,922	12,840	43,133	2,550
TOTAL GOVT AND PATIENT COST	19,238	24,831	82,998	51,206	27,200	151,711	6,419
AVG GOVT COST PER VISIT	94.37	22.82	45.52	57.24	46.32	387.78	53.91
V OUTPATIENT CARE COST SHARED AS INPATIENT							
USER BENEFICIARIES	0	0	0	0	0	0	0
DEPNT OF ACT DUTY SPONSOR	0	0	0	0	0	0	0
RETIREE	0	0	0	0	0	0	0
DEPNT OF RET OR DEC SPONSOR	0	0	0	0	0	0	0
TOTAL GOVERNMENT COST	0	0	0	0	0	0	0
TOTAL PATIENT COST	0	0	0	0	0	0	0
TOTAL GOVT AND PATIENT COST	0	0	0	0	0	0	0
VI TOTAL INPATIENT AND OUTPATIENT CARE							
USER BENEFICIARIES	112	136	395	217	110	204	26
DEPNT OF ACT DUTY SPONSOR	46	53	147	61	15	60	7
RETIREE	10	17	164	42	36	38	5
DEPNT OF RET OR DEC SPONSOR	53	66	184	114	59	106	15
TOTAL GOVERNMENT COST	43,219	32,251	574,359	40,013	30,084	160,611	58,322
TOTAL PATIENT COST	17,486	18,053	399,670	30,168	27,506	128,353	3,066
TOTAL GOVT AND PATIENT COST	60,705	50,304	974,029	70,181	57,592	288,964	62,087

CATEGORY OF CARE - INTERNAL MEDICINE

	INFECTIOUS DISEASE	NEPHROLOGY	NEUROLOGY	NUTRITIONAL	PULMONARY/ RESPIRATORY	RHEUMATOLOGY	OTHER
INPATIENT HOSPITAL SERVICES							
USER BENEFICIARIES	7	1	20	1	27	1	11
DEPNT OF ACT DUTY SPONSOR	3	1	13	0	7	0	7
RETIREE	1	0	7	0	6	0	1
DEPNT OF RET OR DEC SPONSOR	1	0	0	1	12	1	3
TOTAL HOSPITAL ADMISSIONS	7	1	25	2	27	1	15
HOSPITAL DAYS	42	2	389	20	171	1	59
AVERAGE LENGTH OF STAY (DAYS)	6.00	2.00	15.56	10.00	6.33	1.00	4.92
AVERAGE DAILY PATIENT LOAD	0.12	0.01	1.07	0.05	0.47	0.00	0.16
TOTAL GOVERNMENT COST	11,594	183	223,606	6,652	71,170	368	18,872
TOTAL PATIENT COST	16,215	732	21,123	2,217	26,008	123	9,588
TOTAL GOVT AND PATIENT COST	27,809	915	244,731	8,869	97,258	491	28,460
AVG GOVT COST PER ADMISSION	1,656.29	183.00	8,944.32	3,326.00	2,635.93	368.00	1,572.67
AVG GOVT COST PER DAY	276.05	91.50	574.83	332.60	416.20	368.00	319.86
I INPATIENT PROFESSIONAL SERVICES							
USER BENEFICIARIES	5	5	35	5	49	0	81
DEPNT OF ACT DUTY SPONSOR	3	3	13	2	7	0	56
RETIREE	0	1	8	1	15	0	24
DEPNT OF RET OR DEC SPONSOR	2	1	14	2	27	1	31
NUMBER OF VISITS	12	7	359	99	182	27	98
NUMBER OF NON-VISIT SERVICES	19	12	95	12	350	10	945
TOTAL GOVERNMENT COST	915	853	1 10,113	3,174	13,076	1,190	16,407
TOTAL PATIENT COST	86	1,218	5,626	776	7,475	829	7,856
TOTAL GOVT AND PATIENT COST	1,001	2,071	23,739	3,950	20,551	2,019	24,263
II TOTAL INPATIENT SERVICES							
USER BENEFICIARIES	12	5	47	5	63	1	88
DEPNT OF ACT DUTY SPONSOR	6	3	18	2	32	1	30
RETIREE	1	1	10	1	20	1	24
DEPNT OF RET OR DEC SPONSOR	5	1	19	2	31	1	34
TOTAL GOVERNMENT COST	12,509	1,036	241,721	9,826	84,246	1,558	35,279
TOTAL PATIENT COST	6,301	1,950	26,749	2,994	33,563	952	17,444
TOTAL GOVT AND PATIENT COST	18,810	2,986	268,470	12,820	117,809	2,510	52,723
AVG GOVT COST PER ADMISSION	1,787.00	1,036.00	9,668.84	4,913.00	3,120.22	1,558.00	2,016.92
AVG GOVT COST PER DAY	297.83	518.00	621.39	491.30	492.67	1,558.00	597.95
OUTPATIENT PROFESSIONAL SERVICES							
USER BENEFICIARIES	53	15	172	8	239	84	126
DEPNT OF ACT DUTY SPONSOR	29	7	40	3	73	2	51
RETIREE	5	2	33	2	46	22	18
DEPNT OF RET OR DEC SPONSOR	19	6	91	3	119	58	57
NUMBER OF VISITS	75	561	466	3	475	270	231
NUMBER OF NON-VISIT SERVICES	112	316	509	91	703	363	370
TOTAL GOVERNMENT COST	2,989	27,663	40,362	51,457	27,830	9,875	7,835
TOTAL PATIENT COST	2,181	28,727	27,822	16,809	16,517	6,857	6,276
TOTAL GOVT AND PATIENT COST	5,170	56,390	68,184	68,266	44,347	16,732	14,111
AVG GOVT COST PER VISIT	39.85	49.31	86.61	17,152.33	58.59	34.05	42.58
OUTPATIENT CARE COST SHARED AS INPATIENT							
USER BENEFICIARIES	0	0	0	0	0	0	0
DEPNT OF ACT DUTY SPONSOR	0	0	0	0	0	0	0
RETIREE	0	0	0	0	0	0	0
DEPNT OF RET OR DEC SPONSOR	0	0	0	0	0	0	0
TOTAL GOVERNMENT COST	0	0	0	0	0	0	0
TOTAL PATIENT COST	0	0	0	0	0	0	0
TOTAL GOVT AND PATIENT COST	0	0	0	0	0	0	0
TOTAL INPATIENT AND OUTPATIENT CARE							
USER BENEFICIARIES	64	18	202	11	280	90	202
DEPNT OF ACT DUTY SPONSOR	35	9	58	5	80	5	78
RETIREE	6	3	40	3	62	25	37
DEPNT OF RET OR DEC SPONSOR	24	7	101	5	136	60	87
TOTAL GOVERNMENT COST	15,498	28,699	282,083	61,283	112,076	11,433	45,114
TOTAL PATIENT COST	8,482	30,677	54,571	19,803	50,080	7,808	23,732
TOTAL GOVT AND PATIENT COST	23,980	59,376	336,654	81,086	162,156	19,240	68,846

CHAMPUS HEALTH CARE SUMMARY BY PRIMARY DIAGNOSIS
BASED ON CARE RECEIVED FROM 01/07/83 THRU 30/06/04 FOR
109 - FT SAM HOUSTON, TX

CATEGORY OF CARE

	DENTAL	OBSTETRICS	GYNECOLOGY	OPHTHALMOLOGY	PSYCHIATRY GROUP 1	PSYCHIATRY GROUP 2	SPECIAL PEDIATRICS
I INPATIENT HOSPITAL SERVICES							
USER BENEFICIARIES	0	17	15	6	148	113	7
DEPNT OF ACT DUTY SPONSOR	0	11	4	2	62	37	6
RETIREE	0	0	0	0	4	30	0
DEPNT OF RET OR DEC SPONSOR	0	6	11	4	79	45	1
TOTAL HOSPITAL ADMISSIONS	0	17	15	6	132	90	5
HOSPITAL DAYS	0	55	51	21	1,214	1,437	94
AVERAGE LENGTH OF STAY (DAYS)	0.00	3.12	3.32	3.50	9.23	02.63	18.80
AVERAGE DAILY PATIENT LOAD	0.00	0.15	0.14	0.06	22.50	20.38	0.26
TOTAL GOVERNMENT COST	0	13,042	8,902	6,379	1,295,443	1,144,727	110,460
TOTAL PATIENT COST	0	3,522	16,003	5,191	183,686	270,217	12,143
TOTAL GOVT AND PATIENT COST	0	16,564	24,905	11,570	1,479,129	1,414,944	122,603
AVG GOVT COST PER ADMISSION	0.00	767.18	604.27	1,063.17	9,814.96	12,716.19	22,092.00
AVG GOVT COST PER DAY	0.00	246.08	174.55	303.76	157.71	153.92	1,175.11
II INPATIENT PROFESSIONAL SERVICES							
USER BENEFICIARIES	2	31	23	9	146	64	13
DEPNT OF ACT DUTY SPONSOR	0	24	9	1	65	29	7
RETIREE	0	0	0	1	10	1	0
DEPNT OF RET OR DEC SPONSOR	0	7	14	7	75	35	6
NUMBER OF VISITS	4	56	22	9	4,578	1,079	124
NUMBER OF NON-VISIT SERVICES	4	111	61	42	266	40	65
TOTAL GOVERNMENT COST	222	8,253	5,637	12,341	227,499	55,575	18,315
TOTAL PATIENT COST	162	5,594	10,508	10,780	58,782	8,098	5,364
TOTAL GOVT AND PATIENT COST	384	13,847	16,145	23,121	286,281	63,673	23,679
III TOTAL INPATIENT SERVICES							
USER BENEFICIARIES	2	36	30	10	187	139	16
DEPNT OF ACT DUTY SPONSOR	0	29	11	2	78	47	10
RETIREE	0	0	0	1	7	33	0
DEPNT OF RET OR DEC SPONSOR	0	7	19	5	102	59	6
TOTAL GOVERNMENT COST	222	21,294	14,739	18,720	1,522,942	1,200,302	128,772
TOTAL PATIENT COST	162	10,114	26,391	15,970	242,467	278,315	17,510
TOTAL GOVT AND PATIENT COST	384	31,408	41,130	34,690	1,765,409	1,478,617	146,282
AVG GOVT COST PER ADMISSION	0.00	1,252.59	1,133.77	3,120.00	11,537.44	13,336.69	25,754.40
AVG GOVT COST PER DAY	0.00	401.77	289.00	891.43	185.41	161.40	1,369.91
IV OUTPATIENT PROFESSIONAL SERVICES							
USER BENEFICIARIES	7	12	(132)	87	(1,149)	(1,068)	51
DEPNT OF ACT DUTY SPONSOR	5	6	35	22	407	501	31
RETIREE	1	0	4	19	139	86	2
DEPN. OF RET OR DEC SPONSOR	4	3	89	46	603	401	14
NUMBER OF VISITS	49	24	270	198	14,735	12,678	70
NUMBER OF NON-VISIT SERVICES	10	24	557	137	677	556	137
TOTAL GOVERNMENT COST	2,971	3,080	14,753	20,957	804,052	701,017	24,791
TOTAL PATIENT COST	4,350	996	11,012	10,059	311,038	262,467	6,858
TOTAL GOVT AND PATIENT COST	7,321	4,076	25,765	31,016	1,115,090	963,484	31,649
AVG GOVT COST PER VISIT	60.63	(42.22)	54.64	105.84	54.57	55.29	317.83
V OUTPATIENT CARE COST SHARED AS INPATIENT							
USER BENEFICIARIES	0	5	2	2	0	0	0
DEPNT OF ACT DUTY SPONSOR	0	5	2	2	0	0	0
RETIREE	0	0	0	0	0	0	0
DEPNT OF RET OR DEC SPONSOR	0	0	0	0	0	0	0
TOTAL GOVERNMENT COST	0	352	1,762	602	0	0	0
TOTAL PATIENT COST	0	(6)	50	50	0	0	0
TOTAL GOVT AND PATIENT COST	0	346	1,812	732	0	0	0
VI TOTAL INPATIENT AND OUTPATIENT CARE							
USER BENEFICIARIES	8	47	156	93	1,235	1,168	59
DEPNT OF ACT DUTY SPONSOR	5	30	49	24	449	611	37
RETIREE	1	0	4	22	144	116	2
DEPNT OF RET OR DEC SPONSOR	4	9	103	47	642	441	19
TOTAL GOVERNMENT COST	3,193	24,726	31,253	40,359	2,326,994	1,901,319	153,563
TOTAL PATIENT COST	4,511	19,104	37,454	26,080	553,204	540,782	26,360
TOTAL GOVT AND PATIENT COST	7,704	43,830	68,707	66,439	2,880,499	2,442,101	179,931

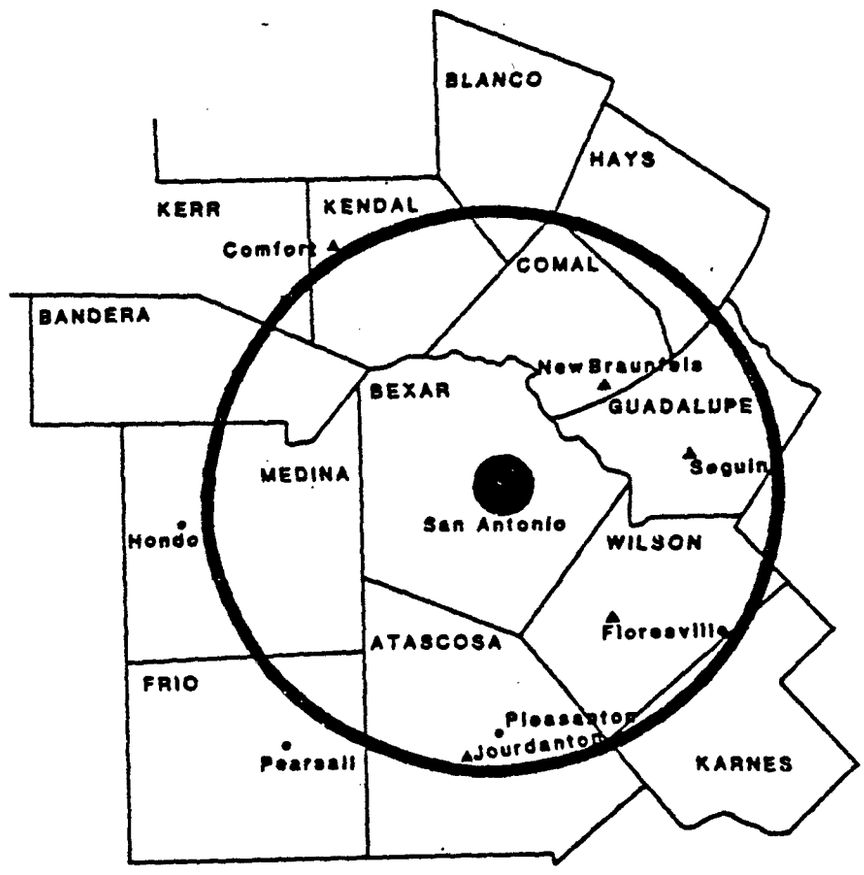
CATEGORY OF CARE - SURGERY

INPATIENT HOSPITAL SERVICES	EAR, NOSE AND THROAT	GENERAL SURGERY	NEURO-SURGERY	ORTHOPEDICS	THORACIC SURGERY	UROLOGY	GRAND TOTAL FOR ALL CATEGORIES
USER BENEFICIARIES	15	69	18	38	4	16	634
DEPNT OF ACT DUTY SPONSOR	7	18	3	6	1	3	302
RETIREE	1	17	2	10	1	2	147
DEPNT OF RET OR DEC SPONSOR	1	14	1	2	1	1	86
TOTAL HOSPITAL ADMISSIONS	17	75	21	56	4	17	787
HOSPITAL DAYS	49	707	250	320	26	27	3,114
AVERAGE LENGTH OF STAY (DAYS)	2.88	9.43	11.90	5.71	6.50	1.94	3.96
AVERAGE DAILY PATIENT LOAD	0.13	1.94	0.68	0.88	0.07	0.10	8.53
TOTAL GOVERNMENT COST	11,774	400,112	56,906	104,274	4,603	14,366	6,006,589
TOTAL PATIENT COST	2,623	126,530	50,610	80,567	6,333	16,715	1,230,633
TOTAL GOVT AND PATIENT COST	14,397	526,642	107,524	184,861	11,022	31,081	5,237,210
AVG GOVT COST PER ADMISSION	692.59	5,334.83	2,709.81	2,673.65	1,170.75	845.06	7,631.07
AVG GOVT COST PER DAY	240.29	565.93	227.62	325.86	160.12	214.42	209.64
II INPATIENT PROFESSIONAL SERVICES							
USER BENEFICIARIES	19	64	23	55	3	22	599
DEPNT OF ACT DUTY SPONSOR	2	15	5	15	1	5	304
RETIREE	4	16	7	11	1	12	131
DEPNT OF RET OR DEC SPONSOR	9	33	11	29	1	7	272
NUMBER OF VISITS	36	275	144	226	50	49	8,536
NUMBER OF NON-VISIT SERVICES	84	733	255	289	24	58	6,576
TOTAL GOVERNMENT COST	19,350	40,652	12,715	29,159	2,732	6,033	437,364
TOTAL PATIENT COST	13,415	42,353	6,815	26,148	1,056	8,819	597,898
TOTAL GOVT AND PATIENT COST	32,765	83,005	19,530	55,307	3,788	14,852	1,035,262
III TOTAL INPATIENT SERVICES							
USER BENEFICIARIES	24	91	33	71	4	29	804
DEPNT OF ACT DUTY SPONSOR	8	22	7	18	1	5	269
RETIREE	4	31	7	16	1	13	160
DEPNT OF RET OR DEC SPONSOR	12	48	16	39	1	11	355
TOTAL GOVERNMENT COST	31,124	440,764	69,621	133,432	7,415	20,399	2,704,548
TOTAL PATIENT COST	21,239	168,883	57,425	106,715	7,389	25,534	1,567,931
TOTAL GOVT AND PATIENT COST	52,363	609,647	127,053	240,167	14,809	45,933	4,272,479
AVG GOVT COST PER ADMISSION	1,830.82	5,076.85	3,315.29	3,421.33	1,853.75	1,199.94	7,011.75
AVG GOVT COST PER DAY	635.18	623.43	278.48	416.98	285.19	304.46	246.16
IV OUTPATIENT PROFESSIONAL SERVICES							
USER BENEFICIARIES	227	380	51	360	14	108	4,024
DEPNT OF ACT DUTY SPONSOR	111	110	9	62	3	44	1,563
RETIREE	22	75	15	52	2	21	622
DEPNT OF RET OR DEC SPONSOR	64	167	37	230	8	53	1,839
NUMBER OF VISITS	622	606	54	538	33	253	35,617
NUMBER OF NON-VISIT SERVICES	474	1,769	212	1,228	130	477	12,455
TOTAL GOVERNMENT COST	32,648	104,950	26,147	58,133	14,060	10,042	2,227,792
TOTAL PATIENT COST	13,009	62,311	9,268	40,258	5,307	10,256	986,422
TOTAL GOVT AND PATIENT COST	45,657	167,301	35,414	98,452	20,167	20,301	3,214,214
AVG GOVT COST PER VISIT	52.49	173.25	484.19	63.03	450.30	71.60	62.55
V OUTPATIENT CARE COST SHARED AS INPATIENT							
USER BENEFICIARIES	7	5	0	1	0	0	22
DEPNT OF ACT DUTY SPONSOR	7	5	0	1	0	0	22
RETIREE	0	0	0	0	0	0	0
DEPNT OF RET OR DEC SPONSOR	0	0	0	0	0	0	0
TOTAL GOVERNMENT COST	1,958	2,276	0	175	0	0	7,205
TOTAL PATIENT COST	175	125	0	25	0	0	419
TOTAL GOVT AND PATIENT COST	2,133	2,401	0	200	0	0	7,624
VI TOTAL INPATIENT AND OUTPATIENT CARE							
USER BENEFICIARIES	246	442	75	411	19	126	4,413
DEPNT OF ACT DUTY SPONSOR	117	139	12	106	4	26	1,718
RETIREE	26	87	18	64	3	14	720
DEPNT OF RET OR DEC SPONSOR	103	217	48	239	8	61	1,975
TOTAL GOVERNMENT COST	65,230	540,030	95,767	192,730	22,275	36,440	4,941,545
TOTAL PATIENT COST	36,922	237,319	67,220	147,489	13,702	35,794	3,796,273
TOTAL GOVT AND PATIENT COST	100,152	776,349	162,987	340,219	34,977	74,234	8,496,317

APPENDIX R

MAPS OF BROOKE ARMY MEDICAL CENTER CATCHMENT AREA AND RELEVANT ZIP CODES

Brooke Army Medical Center Catchment Area



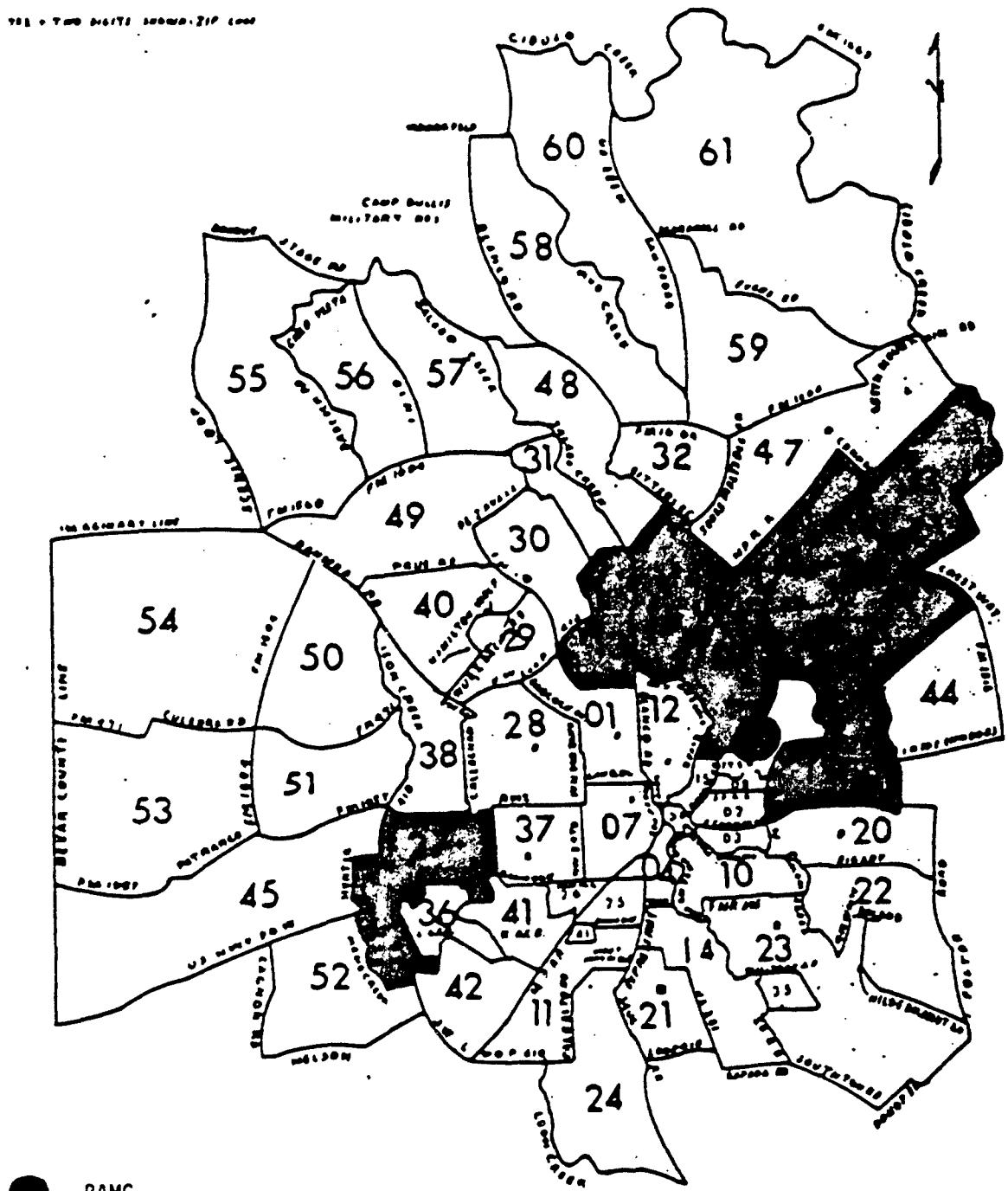
▲Acute care hospitals outside of San Antonio

The catchment area is located within Texas Health Service Area 9 which includes a total of 21 counties.

ZIP CODE MAP

LOCAL AREAS

SAN ANTONIO, TEXAS



BAMC

Top 9 ZIP Codes by Army Retiree Population

Top 10-16 ZIP Codes by Army Retiree Population

APPENDIX S

BROOKE ARMY MEDICAL CENTER CATCHMENT AREA 1980 COUNTY POPULATIONS

1980 CATCHMENT AREA COUNTY POPULATIONS*

County	Total Population
Atascosa	25,055
Bandera	7,084
Bexar	988,800
Comal	36,446
Frio	13,785
Guadalupe	46,708
Kendall	10,635
Kerr	28,780
Medina	23,164
Wilson	16,756
Total	1,197,213

* Total County populations were used since information was not available to split the populations according to the 40-mile radius.

Source: Population Data System, State Health Planning and Resource Development, Texas Department of Health.

APPENDIX T

BROOKE ARMY MEDICAL CENTER CATCHMENT AREA FISCAL YEAR 1980 PRELIMINARY POPULATION ESTIMATES FOR DEPENDENT BENEFICIARIES

FY80 PRELIMINARY CATCHMENT AREA POPULATION ESTIMATES
DEPENDENT BENEFICIARIES

MTF 109
BROOKE AMC FT SAM HOUSTON

AGE/SEX	MILITARY ACTIVE DUTY DEPENDENTS	MILITARY RETIRED DEPENDENTS	MILITARY SURVIVOR DEPENDENTS	NON-MILITARY DEPENDENTS	TOTAL
0-5/M	3209	278	2	1	3490
6-17/M	5744	3661	74	3	9482
18-44/M	1406	2270	66	2	3744
45-64/M	47	24	2	0	73
65 +/M	7	16	1	0	24
TOTAL/M	10413	6249	145	6	16813
0-5/F	3068	281	2	1	3352
6-17/F	5631	3557	72	3	9263
18-44/F	10306	5528	120	6	15960
45-64/F	683	8537	357	6	9583
65 +/F	61	1250	182	1	1494
TOTAL/F	19749	19153	733	17	39652
TOTAL	30162	25402	878	23	56465

APPENDIX U

SUMMARY OF HOSPITAL PATIENT ORIGIN DISTRIBUTIONS

FOR BROOKE ARMY MEDICAL CENTER

CATCHMENT AREA

SUMMARY OF HOSPITAL PATIENT ORIGIN DISTRIBUTIONS

Residence of Patient (County)	COUNTY OF HOSPITAL(S) LOCATION						
		Bexar					
	Atascosa	Civilian	Federal	Comal	Guadalupe	Kendall	Wilson
Atascosa	83.4%	1.2%	.4%	-	-	-	-
Bandera	-	.2	.2	-	-	2.5%	-
Bexar	6.1	85.3	58.9	4.0%	1.0%	2.5	7.9%
Comal	-	.9	.6	79.0	2.4	-	-
Frio	1.2	.5	.2	-	-	-	-
Guadalupe	-	1.3	1.7	8.9	81.9	-	-
Kendall	-	.6	.3	.3	-	57.5	-
Kerr	-	.3	.4	-	-	37.5	-
Medina	1.2	1.6	.5	-	-	-	-
Wilson	.4	.7	.2	.3	1.7	-	59.2
Blanco & Hays	-	.2	.3	-	-	-	-
Outside Catchment Area but Inside State	7.3	6.2	21.7	7.2	12.8	-	32.9
Out of State	.4	1.0	14.6	.3	.3	-	-
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

(EXAMPLE: 83.4% of the Total Admissions to Atascosa County Catchment Area Hospitals were from Atascosa County.)

APPENDIX V

1980 PATIENT ORIGIN DISTRIBUTION FOR BROOKE ARMY MEDICAL CENTER CATCHMENT AREA FEDERAL HOSPITALS

1980 PATIENT ORIGIN DISTRIBUTION FOR BAMC CATCHMENT AREA FEDERAL HOSPITALS

Residence of Patient (County)	BAMC	Wilford Hall	Audie Murphy VA
Atascosa	.1%	.3%	.9%
Bandera	.2	.1	.4
Bexar	69.2	59.2	45.9
Comal	.6	-	1.2
Frio	.1	-	.7
Guadalupe	2.8	.8	2.4
Kendall	.2	.2	.4
Kerr	.6	.2	1.2
Medina	-	.3	1.3
Wilson	.4	.1	.4
Blanco & Hays	.3	-	.9
Outside Catchment Area but Inside State	15.7	14.4	43.4
Out of State	9.8	24.4	.9
TOTAL	100.0%	100.0%	100.0%

APPENDIX W

DELPHI SURVEY

DISPOSITION FORM

For use of this form, see AR 340-15; the proponent agency is TAGO.

129

REFERENCE OR OFFICE SYMBOL	SUBJECT
HSHE-ZX	Delphi Survey

TO SEE DISTRIBUTION FROM Chief of Staff, BAMC DATE 28 Feb 85 CMT 1
CPT Evans/bc/5660

1. Please find attached a Delphi Survey concerning outpatient services at Brooke Army Medical Center.

2. The survey is part of a study being conducted by CPT John K. Evans, Administrative Resident, for the US Army-Baylor University Graduate Program in Health Care Administration.

3. On completion of the survey, please return it through distribution NLT 1 April 1985 utilizing the message envelope provided.

4. Any questions can be directed to CPT Evans at 5660/7049.

1 Incl
as

JAMES B. STUBBLEFIELD
Colonel, MSC
Chief of Staff

DISTRIBUTION:

Nutritional Care Directorate
C, Emergency Room
C, Acute Minor Illness Clinic
C, Physical Therapy
C, Occupational Therapy
C, Allergy Svc
C, Cardiology Svc
C, Dermatology Svc
C, Endocrinology Svc
C, Gastroenterology Svc
C, Hematology Svc
C, Infectious Disease Svc
C, Nephrology Svc
C, Pulmonary/Respiratory Svc
C, Urology Svc
C, Rheumatology Svc
C, Gynecology Svc
C, Outpatient Psychiatry Svc
C, Speech Pathology Svc
C, ENT Svc
C, General Surgery Svc
C, Neuro-Surgery Svc
C, Thoracic Surgery Svc
C, Plastic Surgery Svc
C, Orthopedics Svc
C, Ophthalmology Svc
C, Optometry Svc
C, Internal Medicine Svc
C, Neurology Svc
C, Oncology Svc
C, Podiatry Svc
C, Audiology Svc
C, Social Work Svc
Administrator, Dept of Emergency & Amb Med
Administrator, Dept of Medicine
Administrator, Dept of Surgery
Administrator, Dept of Psychiatry
Chief Nurse, Emergency Room
Chief Nurse, Urology Svc
Chief Nurse, Gynecology Svc
Chief Nurse, General Surgery Svc
Chief Nurse, Internal Medicine Svc
Chief Nurse, Oncology Svc

CF:

C, Nurse, ATTN: Ambulatory Nursing
C, Dept of Surgery
C, Dept of Medicine
C, Dept of Emergency & Amb Medicine
C, Physical Medicine and Rehabilitation

OUTPATIENT SERVICES DELPHI SURVEY

Attached to this cover letter is a survey designed to solicit your opinions as managers in the outpatient arena. It is part of a graduate research project which will be submitted to the U.S. Army-Baylor University Graduate Program in Health Care Administration. The research project is intended to identify the views of the Army retiree population residing in San Antonio with respect to the sources of health care they utilize for outpatient services. Both current users and nonusers of the outpatient services at Brooke Army Medical Center will be asked to answer questions regarding levels of need, satisfaction and familiarity with services.

In order to quantify the responses made by this patient population it is important that the managers of each outpatient area identify the specific levels of need, satisfaction and familiarity with services that would warrant some action on their part. For example: if thirty percent of the population were identified as being dissatisfied with some aspect of an outpatient service, would this percentage level warrant consideration for making changes in a certain aspect of the operation? Likewise, if a percentage of the population were identified as being unfamiliar with a certain service's existence, at what point would the managers give consideration to disseminating information regarding the service's existence?

Once these levels have been established by managers of the outpatient services and comparisons are made with those responses made by the patient population, recommendations will be formulated for either changing services or increasing familiarity levels.

Within the next year serious consideration will be given to determining the exact bed size of BAMC. An accurate picture of the consumer population's perceived needs and level of satisfaction and familiarity with services may play an important part in determining the scope of services which can be supported by that population. Your input as a manager is critical to evaluating the significance of the responses which are received. Please take the time to complete this survey and the follow-on survey portions of the Delphi study. Your help is most appreciated!

JOHN R. EVANS
CPT, MSC
ADMINISTRATIVE RESIDENT

ADMINISTRATIVE INFORMATION- Please provide the following information:

Outpatient Service (i.e. nephrology):_____

Managerial Position (i.e. head nurse):_____

Date:_____

SURVEY INFORMATION- Please provide percentage levels that most accurately reflect your opinion with regard to need, familiarity and satisfaction with services:

NEED LEVEL: If greater than _____ percent of the patient population perceives a need for the outpatient service we offer consideration should be given to expanding this service.

FAMILIARITY LEVEL: If greater than _____ percent of the patient population is noted to be unfamiliar with the outpatient service we offer consideration should be given to disseminating information concerning its' availability.

SATISFACTION LEVEL: For each satisfaction indicator listed below please identify the percentage level at which you would give consideration to making changes in some aspect of the current outpatient operation:

Difficulty Obtaining an Appointment: greater than _____percent

Poor Attitude by the Nurses: greater than _____percent

Poor Response to Complaints: greater than _____percent

Locacion is too far from Home: greater than _____percent

Poor Community Reputation: greater than _____percent

Non-Availability of a Physician: greater than _____percent

Inadequate Hours Services are Provided: greater than _____percent

Poor Attitude of the Physicians: greater than _____percent

Poor Cleanliness of the Building: greater than _____percent

Lack of Volunteers: greater than _____percent

Ethnic Origin/Language of Staff inadequate: greater than _____percent

Warmth of General Atmosphere (Ambience) Poor: greater than _____ percent

Odor of the Building Poor: greater than _____ percent

Poor Attitude of the Administration: greater than _____ percent

APPENDIX X

DELPHI SURVEY COMPOSITE RESULTS

DELPHI SURVEY COMPOSITE RESULTS

(In Percent)

Service	Need	Familiarity	Satisfaction: Appointment	Nurses	Response	Location	Reputation	Nonavailability	Hours	Physician	Cleanliness	Volunteer	Language	Atmosphere	Odor	Administration
Allergy	10	20	27	19	17	50	16	19	30	15	21	40	40	23	18	17
Cardiology	50	15														
Dermatology	20	20														
Endocrinology	15	10														
Gastro-enterology	50	20														
Hematology	18	15														
Infectious Disease	40	50														
Internal Medicine	33	30														
Nephrology	20	50														
Neurology	N/A	30														
Oncology	18	15														
Pulmonary/Respiratory	N/A	N/A														
Rheumatology	20	30														
Gynecology	0	0														
Psychiatry	30	36														
Emergency Room	22	33														
Acute Minor Illness Clinic	18	13														
Physical Therapy	50	25														
Occupational Therapy	15	15														
Speech Pathology	5	10														
Audiology	N/A	N/A														
Social Work	50	35														
Nutrition	40	30														
Cardio-Thoracic	N/A	N/A														
General Surgery	56	43														
Neuro-Surgery	23	26														
Ophthalmology	40	35														
Orthopedics	33	40														
Ear, Nose, & Throat	50	27														
Urology	16	19														
Optometry	20	12														
Podiatry	N/A	N/A	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
Plastic Surgery	N/A	N/A	27	19	17	50	16	19	30	15	21	40	40	23	18	17

N/A = No answer received.

0 = Respondee felt that any level above 0 was significant.

APPENDIX Y

BROOKE ARMY MEDICAL CENTER OUTPATIENT

ASSESSMENT PRETEST SURVEY

Dear Health Care Beneficiary,

You have been selected to 'pre-test' a survey concerning health care delivery at Brooke Army Medical Center. The purpose of this 'pretest' is to receive your opinion on the type of questions that we are asking. We are interested in knowing if you feel the questions are too long, too complicated, too personal, or if they simply don't make sense. We would also appreciate knowing if you think a question is good and should be left as it is written. A space has been provided after each question so that you may write in comments concerning its value.

Your responses will be used to prepare a final survey which will be sent to every Army retiree and/or their dependent(s) that is eligible to receive health care at Brooke Army Medical Center.

Your help is the first step in an important process. Once the final surveys are received and we are able to specifically identify how the Army retirees feel about the care that we are providing, we can work towards better meeting your needs and satisfaction levels.

Thank-you for taking the time to assist us. Merry Christmas.

BAMC STAFF

PLEASE ANSWER THE FOLLOWING QUESTIONS BY WRITING YOUR RESPONSE IN THE SPACE PROVIDED.

1. Please indicate the year you began using your retirement health care benefits: _____

2. Please indicate the year you moved to San Antonio: _____

3. Please indicate the ZIP Code of your current address: _____

4. Please indicate rank/grade or sponsor's rank/grade at time of retirement: _____

5. Please indicate your present age: _____

COMMENTS ON QUESTIONS (If Any): _____

PLEASE ANSWER THE FOLLOWING QUESTIONS BY PLACING A CHECK MARK (✓) BESIDE THE APPROPRIATE RESPONSE.

1. Sex: ___Male ___Female

COMMENTS ON QUESTION (If Any): _____

2. Present eligibility category:

___Retired Active Duty
___Dependent of Deceased Retired Active Duty

COMMENTS ON QUESTION (If Any): _____

3. The frequency at which you normally visit a doctor or receive treatment:

___About once a week
___More than once a week
___About once a month
___About once every other month
___About once every six months
___About once a year

COMMENTS ON QUESTION (If Any): _____

4. The distance you live from Brooke Army Medical Center:

___Within 1 mile
___Within 2½ miles
___Within 5 miles
___Within 10 miles
___Greater than 10 miles

COMMENTS ON QUESTION (If Any): _____

_____

5. The health care organization you visit most often for outpatient care (i.e., not being admitted):

___Brooke Army Medical Center
___Wilford Hall Medical Center
___Audie L. Murphy Memorial Veterans Administration Hospital
___Civilian Hospital
___Health Maintenance Organization
___Private Physician
___Other (Please specify, i.e., family practice emergicenter, etc.)
_____

COMMENTS ON QUESTION (If Any): _____

_____

6. Please indicate the type of care that you currently receive on an outpatient basis by placing a check mark (✓) in the block [ ] beside the appropriate response:

1. [ ] Allergy
2. [ ] Cardiology
3. [ ] Dermatology
4. [ ] Endocrinology
5. [ ] Gastroenterology
6. [ ] Hematology
7. [ ] Infectious Disease
8. [ ] Nephrology
9. [ ] Nutritional
10. [ ] Occupational Therapy
11. [ ] Physical Therapy
12. [ ] Pulmonary/Respiratory
13. [ ] Rheumatology
14. [ ] Obstetrics
15. [ ] Gynecology
16. [ ] Ophthalmology
17. [ ] Psychiatry
18. [ ] Pediatrics
19. [ ] Speech Pathology
20. [ ] Ear, Nose, and Throat
21. [ ] General Surgery
22. [ ] Neurosurgery
23. [ ] Orthopedics
24. [ ] Thoracic Surgery
25. [ ] Urology

COMMENTS ON QUESTION (If Any): _____

_____

7. Are you aware that all the services listed above are available at Brooke Army Medical Center?

[ ] Yes
[ ] No If No, please circle the number preceding each service listed above you were unaware existed at Brooke Army Medical Center (BAMC).

Now that you are aware of the services at BAMC, would you consider utilizing them in the future if the need arose?

[ ] Yes
[ ] No If No, please give a brief statement in the space provided that addresses the reason(s) you would not consider utilizing these services in the future.

_____
_____
_____
_____

COMMENTS ON QUESTION (If Any): _____
_____

8. Utilizing the letters that correspond to the items listed below, please indicate your level of satisfaction with the source(s) of outpatient service you currently use. (Example: [B] Quality of Care)

A. Completely Satisfied
B. Fairly Satisfied
C. Not Satisfied
D. Not Applicable

[ ] Quality of care
[ ] Ease of obtaining an appointment
[ ] Attitude of the nurses
[ ] Response to complaints
[ ] Distance from home
[ ] Community reputation
[ ] Privacy of each bed
[ ] Availability of a physician
[ ] Size of the rooms
[ ] Other _____
[ ] Other _____

[ ] Hours services are provided
[ ] Attitude of the physician
[ ] Cleanliness of the building
[ ] Type of food served
[ ] Presence of volunteers
[ ] Ethnic origin/language of the staff
[ ] Warmth of general atmosphere
[ ] Odor of the building
[ ] Other _____
[ ] Other _____

COMMENTS ON QUESTION (If Any): _____
_____

9. Judging by your current or past experiences, please indicate in order of priority those changes in BAMC's services which would prompt you to seek care at BAMC:

#1. Priority: _____

#2. Priority: _____

#3. Priority: _____

COMMENTS ON QUESTION (If Any): _____
_____
_____
_____

10. Brooke Army Medical Center also offers many educational programs/classes for its patients. Please indicate your familiarity with and interest in these programs by placing a check mark (✓) in the block [ ] under the appropriate response.

Program	I am familiar with this program	I am unfamiliar with this program	I currently use this program	I will consider using this program in the future if the need arises
Diabetic Diets	[ ]	[ ]	[ ]	[ ]
Weight Reduction	[ ]	[ ]	[ ]	[ ]
Expectant Parents	[ ]	[ ]	[ ]	[ ]
OB Orientation	[ ]	[ ]	[ ]	[ ]
Well Baby	[ ]	[ ]	[ ]	[ ]
Breast Feeding	[ ]	[ ]	[ ]	[ ]
Basic Prenatal Nutrition	[ ]	[ ]	[ ]	[ ]
Low Sodium Diets	[ ]	[ ]	[ ]	[ ]
Single Parents	[ ]	[ ]	[ ]	[ ]
Prudent Diets	[ ]	[ ]	[ ]	[ ]
Stop Smoking	[ ]	[ ]	[ ]	[ ]
Wellness	[ ]	[ ]	[ ]	[ ]
Singles support Group	[ ]	[ ]	[ ]	[ ]

COMMENTS ON QUESTION (If Any): _____

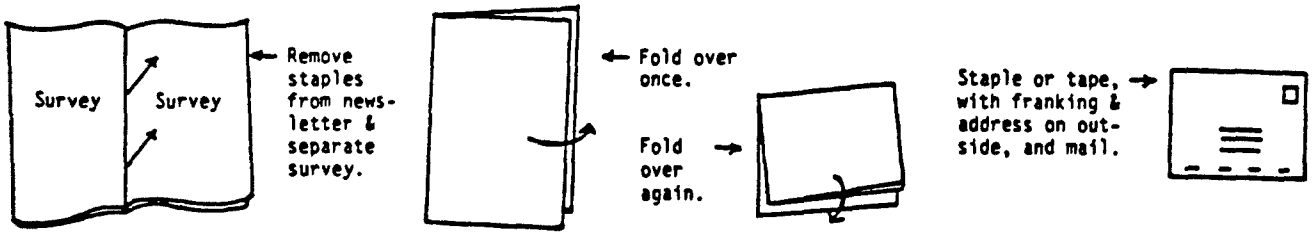
APPENDIX Z

BROOKE ARMY MEDICAL CENTER OUTPATIENT

ASSESSMENT SURVEY

BROOKE ARMY MEDICAL CENTER OUTPATIENT ASSESSMENT SURVEY

This page and the following three pages consist of a single sheet of paper making up the centerfold of this Retirement Services Bulletin. The centerfold, which can be easily removed without destroying the rest of the bulletin, consists of a survey designed to solicit your opinions concerning outpatient care at Brooke Army Medical Center (BAMC). The responses will be kept in strict confidence and will be used to specifically identify how you feel about the outpatient care which we are providing and how we can work toward better meeting your needs and satisfaction levels. On completion, separate the one-piece centerfold from the rest of the bulletin, fold and secure it as illustrated below, and mail it to the address which appears on the mailer on the lower half of this page. No postage is required.



PLEASE BEGIN SURVEY ON NEXT PAGE.

Please fold here. Please fold here.

HQ, Brooke Army Medical Center
Office of the Adjutant General
Fort Sam Houston, TX 78234-6200

No postage necessary if mailed in the United States

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE $300

HSHE-AG

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 12062 WASHINGTON D.C.

POSTAGE WILL BE PAID BY DEPARTMENT OF ARMY

Headquarters
Brooke Army Medical Center
Office of the Adjutant General
ATTN: CPT John K. Evans
Fort Sam Houston, TX 78234-6200

Staple or tape before mailing.

BROOKE ARMY MEDICAL CENTER OUTPATIENT ASSESSMENT SURVEY

PLEASE ANSWER THE FOLLOWING QUESTIONS BY WRITING YOUR RESPONSE IN THE SPACE PROVIDED.

1. Please indicate the year your retirement health care benefits became effective: _____
2. Please indicate the year you moved to San Antonio: _____
3. Please indicate the ZIP Code of your current address: _____
4. Please indicate your present age: _____
5. Please indicate rank/grade or sponsor's rank/grade at time of retirement by circling the appropriate response:

E-1 to E-4 E-5/E-6 E-7/E-8 E-9 WO-2/3/4 O-1 to O-3 O-4 O-5 O-6/O-7

PLEASE ANSWER THE FOLLOWING QUESTIONS BY PLACING A CHECK MARK (✓) BESIDE THE APPROPRIATE RESPONSE.

6. Sex: ___Male ___Female
7. Present eligibility category: ___Retired Military ___Dependent of Deceased Retired Military
8. The frequency at which you normally visit a doctor or receive treatment:

___About once a week ___About once a month ___About once every six months
___More than once a week ___About once every other month ___About once a year

9. The distance you live from Brooke Army Medical Center:

___Within 1 mile ___Within 5 miles ___Within 20 miles
___Within 2½ miles ___Within 10 miles ___Greater than 20 miles

10.A. Please indicate the health care organization(s) you visited most often for INPATIENT CARE (being admitted) over the last year by placing a check mark (✓) in the block under the appropriate percentage level. For example: If you received all your inpatient care at a civilian hospital, then place a check mark under 100%; or, if you received about a third of your inpatient care at the Veterans Administration (VA) hospital and the rest at Wilford Hall, then you should check 30% for the VA hospital and 70% for Wilford Hall.

	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Audie Murphy VA Hospital										
Brooke Army Medical Center										
Civilian Hospital										
Wilford Hall Medical Center										
Health Maintenance Organization										
Private Physician										
Minor Emergency Center (Med First, Urgentcare)										
Other										

10.B. Please indicate the health care organization(s) you visited most often for OUTPATIENT CARE (not being admitted) over the last year by placing a check mark (✓) in the block under the appropriate percentage level in the same fashion that you answered the previous question (10.A.).

	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Audie Murphy VA Hospital										
Brooke Army Medical Center										
Civilian Hospital										
Wilford Hall Medical Center										
Health Maintenance Organization										
Private Physician										
Minor Emergency Center (Med First, Urgentcare)										
Other										

PLEASE CONTINUE TO NEXT PAGE

11. If you receive INPATIENT and/or OUTPATIENT care from a civilian source (hospital, clinic, or physician), what method(s) of payment do you utilize to cover expenses? (Please place a check mark [✓] by the appropriate response)

___Medicare ___Blue Cross/Blue Shield ___CHAMPUS
___Medicaid ___Other Private Insurance ___Pay Out of Pocket

12. Please indicate the type of care, if any, that you have received on an OUTPATIENT basis over the last year by placing a check mark (✓) in the block under the appropriate organization from which you received the care. For example: If you visited Brooke Army Medical Center for dermatology care during the last year, you would place a check mark in the block under Brooke Army Medical Center on the line labeled Dermatology.

	VA Hospital	Brooke Army Medical Center	Civilian Hospital	Wilford Hall Medical Center	Health Maintenance Organization	Private Physician	Minor Emergency Center	Other
1. Emergency Room								
2. Acute Minor Illness Clinic								
3. Physical Therapy								
4. Occupational Therapy								
5. Nutritional								
6. Allergy								
7. Cardiology								
8. Dermatology								
9. Endocrinology								
10. Gastro-enterology								
11. Hematology								
12. Infectious Disease								
13. Nephrology								
14. Pulmonary/Respiratory								
15. Urology								
16. Rheumatology								
17. Gynecology								
18. Psychiatry								
19. Speech Pathology								
20. Ear, Nose, & Throat								
21. General Surgery								
22. Neuro-Surgery								
23. Thoracic Surgery								
24. Plastic Surgery								
25. Orthopedics								
26. Ophthalmology								
27. Optometry								
28. Internal Medicine								
29. Neurology								
30. Oncology								
31. Podiatry								
32. Audiology								
33. Social Work								

13. Are you aware that all the services listed above are available at Brooke Army Medical Center (BAMC)?

___Yes ___No

If No, please list the number(s) which correspond to each service which you were unaware existed at BAMC. For example: If you were unaware that optometry is available at BAMC, then you would write 27.

_____

_____

14. Now that you are aware of the services at BAMC, would you consider utilizing them in the future if the need arose?

___Yes ___No

If not, why not? _____

_____

_____

_____

_____

PLEASE CONTINUE ON BACK OF PAGE

15. Please indicate your level of satisfaction with the outpatient services of that hospital/organization you visit most frequently over the last year (i.e., the hospital/organization that received the highest percent in Questi 10.8.) by placing a check mark (✓) in the space which corresponds to a specific factor. For example: If y were fairly satisfied with the attitude of the physicians at the hospital/organization which you visited mc frequently for outpatient care over the last year, then you should place a check mark under Fairly Satisfied the line that states Attitude of the Physicians.

	Completely Satisfied	Fairly Satisfied	Adequate	Not Satisfied	Not Applicable
Quality of Care					
Ease of Obtaining an Appointment from the Clinic Receptionist					
Attitude of the Nurses					
Response to Complaints					
Distance from Home					
Community Reputation					
Ethnic Origin/Language of the Staff					
Availability of a Physician					
Ease of Obtaining an Appointment through Central Appointments Service					
Hours Services Are Provided					
Attitude of the Physicians					
Cleanliness of the Building					
Presence of Volunteers					
Attitude of the Administration					
Warmth of General Atmosphere					
Odor of the Building					
Other					

If you would like to comment further on past experiences at any of the mentioned organizations, please do so belo

_____

_____

_____

16. Judging by your current or past experiences, please indicate in order of priority those changes in BAMC servic which you would recommend making.

No. 1 Priority: _____

No. 2 Priority: _____

No. 3 Priority: _____

17. Brooke Army Medical Center also offers many educational programs/classes for its patients. Please indicate yo familiarity with and interest in these programs by placing a check mark (✓) in the block under the appropria response to each item.

	I am familiar with this program	I am unfamiliar with this program	I currently use this program	I will consider using this program in the future if the need arises
Newcomer Orientation				
Diabetic Diets				
Weight Reduction				
Alcohol/Drug Abuse				
Men & Women Health Issues				
Adult Support Group				
Low Salt Diets				
Arthritis Group				
Stop Smoking Clinic				
Stress Group				
Oncology Support Group				
Cholesterol Diets				

APPENDIX AA

BEXAR COUNTY BENEFICIARY POPULATION AND POPULATION COLLECTION BY ZIP CODE

BEXAR COUNTY BENEFICIARY POPULATION AND POPULATION COLLECTION BY ZIP CODE

ZIP Code	Percent of Beneficiary Population	Surveys Received	
		Number	Percent of ZIP Code Beneficiary Population
78209	13.1	230	17.0
78218	12.9	158	12.0
78239	9.8	165	16.0
78233	5.8	54	9.0
78217	5.5	64	11.0
78219	4.0	31	8.0
78216	3.5	54	15.0
78213	2.8	37	13.0
78227	2.7	10	4.0
78201	2.6	205	76.0
78223	2.6	85	32.0
78220	2.2	46	20.0
78210	2.1	14	6.3
78230	2.1	6	2.7
78232	2.0	8	3.8
78228	2.0	0	0.0
All Others	24.3	15	1.3

APPENDIX BB

HYPOTHESIS TEST RESULTS FOR NEED

HYPOTHESIS TEST RESULTS FOR NEED

Service	Number Responding (N)	BAMC Manager Level	Critical Value Level	Respondent Level	Level of Significance	Accept (A) or Reject (R)
Allergy	83	.10	.18	.08	N/S	A
Cardiology	262	.50	.58	.08	N/S	A
Dermatology	447	.20	.25	.07	N/S	A
Endocrinology	39	.15	.31	.13	N/S	A
Gastro-enterology	157	.50	.61	.11	N/S	A
Hematology	67	.18	.30	.08	N/S	A
Infectious Disease	9	.40	.89	.22	N/S	A
Internal Medicine	544	.33	.38	.07	N/S	A
Nephrology	13	.20	.46	0	N/S	A
Neurology	N/A	N/A	N/A	N/A	N/A	N/A
Oncology	74	.18	.30	.03	N/S	A
Pulmonary	N/A	N/A	N/A	N/A	N/A	N/A
Rheumatology	48	.20	.35	.17	N/S	A
Gynecology	132	0	0	.08	.01	R
Psychiatry	14	.30	.61	.50	N/S	A
Emergency Room	563	.22	.27	.05	N/S	A
AMIC	301	.18	.24	.05	N/S	A
Physical Therapy	158	.50	.60	.09	N/S	A
Occupational Therapy	17	.15	.35	.18	N/S	A
Speech Pathology	5	.05	.40	.21	N/S	A
Audiology	N/A	N/A	N/A	N/A	N/A	N/A
Social Work	14	.50	.86	.57	N/S	A
Nutrition	49	.40	.57	.10	N/S	A
Cardio-Thoracic Surgery	N/A	N/A	N/A	N/A	N/A	N/A
General Surgery	148	.56	.67	.08	N/S	A
Neuro-Surgery	25	.23	.44	.08	N/S	A
Ophthalmology	313	.40	.47	.123	N/S	A
Orthopedics	136	.33	.43	.15	N/S	A
Ear, Nose, & Throat	222	.50	.59	.14	N/S	A
Urology	311	.16	.22	.06	N/S	A
Optometry	429	.20	.25	.07	N/S	A
Podiatry	N/A	N/A	N/A	N/A	N/A	N/A
Plastic Surgery	N/A	N/A	N/A	N/A	N/A	N/A

AMIC = Acute Minor Illness Clinic

N/A = The Delphi study was not received from the BAMC managers in this service, and analyses could not be conducted.

N/S = Not significant

APPENDIX CC

HYPOTHESIS TEST RESULTS FOR DISSATISFACTION

HYPOTHESIS TEST RESULTS FOR DISSATISFACTION

Indicator	Number Responding (N)	BAMC Manager Level	Critical Value Level	Respondent Level	Level of Significance	Accept (A) or Reject (R)
Central Appointments System	1,083	.27	.30	.41	.01	R
Attitude of Nurses	1,033	.19	.22	.014 [.08][a]	N/S	A [A]
Response to Complaints	936	.17	.20	.035 [.13][a]	N/S	A [A]
Distance	1,002	.50	.54	.017 [.10][a]	N/S	A [A]
Community Reputation	948	.16	.19	.027 [.10][a]	N/S	A [A]
Ethnicity/Language of Staff	977	.40	.44	.021 [.13][a]	N/S	A [A]
Availability of Physician	1,035	.19	.22	.062 [.19][a]	N/S	A [A]
Hours Services Provided	1,065	.30	.34	.013 [.13][a]	N/S	A [A]
Attitude of Physicians	1,106	.15	.18	.016 [.07][a]	N/S	A [A]
Cleanliness	1,092	.21	.24	.043 [.20][a]	N/S	A [A]
Presence of Volunteers	1,008	.40	.44	.005 [.15][a]	N/S	A [A]
Attitude of Administration	1,038	.17	.20	.025 [.15][a]	N/S	A [A]
Warmth of Atmosphere	1,060	.23	.26	.04 [.19][a]	N/S	A [A]
Odor of Building	1,042	.18	.21	.054 [.19][a]	N/S	A [A]

[a]Even if the Adequately Satisfied responses were added to the Not Satisfied responses, the critical value would still not be exceeded.

N/S = Not significant

APPENDIX DD

FAMILIARITY WITH OUTPATIENT SERVICES IN GENERAL

AT BROOKE ARMY MEDICAL CENTER

FAMILIARITY WITH OUTPATIENT SERVICES IN GENERAL AT BROOKE ARMY MEDICAL CENTER

40. AWARE 40.

N	MEAN	SD	MEDIAN
1160	1.03	0.18	1.02

	FREQ	PCT	CUMPCT	
1) YES	1122	96.72	96.72	I**********
2) NO	38	3.28	100.00	I**

APPENDIX EE

RESPONDENT UNFAMILIARITY WITH OUTPATIENT PROGRAMS AT BROOKE ARMY MEDICAL CENTER

RESPONDENT UNFAMILIARITY WITH OUTPATIENT PROGRAMS AT BAMC

Program	Number Responding (N)	BAMC Manager Level	Critical Value Level	Respondent Level	Level of Significance	Accept (A) or Reject (R)
Newcomer Orientation	628	.25	.29	.65	.01	R
Diabetic Diets	625	.05	.07	.45	.01	R
Weight Reduction	652	.05	.07	.42	.01	R
Alcohol/Drug Abuse	553	.10	.13	.51	.01	R
Men's & Women's Health Issues	571	.25	.30	.75	.01	R
Adult Support Group	568	.25	.30	.75	.01	R
Low Salt Diets	643	.05	.07	.43	.01	R
Arthritis Group	580	.25	.30	.63	.01	R
Stop Smoking Clinic	546	.25	.30	.62	.01	R
Stress Group	569	.20	.24	.69	.01	R
Oncology Support Group	582	N/A	N/A	.64	N/A	N/A
Cholesterol Diets	625	.05	.07	.50	.01	R

N/A--The Delphi study was not received from the BAMC managers in this service, and analyses could not be conducted.

APPENDIX FF

USAGE PATTERNS FOR ALL SAN ANTONIO HEALTH CARE SOURCES UNDER CONSIDERATION

USAGE PATTERNS FOR ALL SAN ANTONIO HEALTH

CARE SOURCES UNDER CONSIDERATION

54. AUDIE MURPHY HOSPITAL 54.

N	MEAN	SD	MEDIAN
47	3.53	2.96	1.88

	FREQ	PCT	CUMPCT	
1) 10-20P	22	46.81	46.81	I**********
2) 30P	4	8.51	55.32	I****
3) 40P	1	2.13	57.45	I*
4) 50P	3	6.38	63.83	I***
5) 60P	3	6.38	70.21	I***
6) 70P	3	6.38	76.60	I***
7) 80P	3	6.38	82.98	I***
8) 90P	5	10.64	93.62	I*****
9) 100P	3	6.38	100.00	I***

55. BROOKE ARMY MEDICAL CENTER 55.

N	MEAN	SD	MEDIAN
1051	8.14	2.18	8.88

	FREQ	PCT	CUMPCT	
1) 10-20P	62	5.90	5.90	I***
2) 30P	13	1.24	7.14	I*
3) 40P	6	0.57	7.71	I
4) 50P	26	2.47	10.18	I*
5) 60P	3	0.29	10.47	I
6) 70P	13	1.24	11.70	I*
7) 80P	20	1.90	13.61	I*
8) 90P	60	5.71	19.31	I***
9) 100P	848	80.69	100.00	I**********

56. CIVILIAN 56.

N	MEAN	SD	MEDIAN
32	4.59	3.37	4.00

	FREQ	PCT	CUMPCT	
1) 10-20P	10	31.25	31.25	I**********
2) 30P	3	9.38	40.63	I*****
3) 40P	1	3.13	43.75	I**
4) 50P	4	12.50	56.25	I******
5) 60P	3	9.38	65.63	I*****
6) 70P	0	0.0	65.63	I
7) 80P	0	0.0	65.63	I
8) 90P	2	6.25	71.88	I***
9) 100P	9	28.13	100.00	I**********

57. WILFORD HALL MEDICAL CENTER 57.

N	MEAN	SD	MEDIAN
52	4.98	3.53	5.50

	FREQ	PCT	CUMPCT	
1) 10-20P	19	36.54	36.54	I**********
2) 30P	2	3.85	40.38	I**
3) 40P	1	1.92	42.31	I*
4) 50P	4	7.69	50.00	I****
5) 60P	0	0.0	50.00	I
6) 70P	1	1.92	51.92	I*
7) 80P	2	3.85	55.77	I**
8) 90P	10	19.23	75.00	I**********
9) 100P	13	25.00	100.00	I**********

58. HEALTH MAINTAINANCE ORGANIZATION 58.

N	MEAN	SD	MEDIAN
8	3.75	3.81	1.30

	FREQ	PCT	CUMPCT	
1) 10-20P	5	62.50	62.50	I**********
2) 30P	0	0.0	62.50	I
3) 40P	0	0.0	62.50	I
4) 50P	0	0.0	62.50	I
5) 60P	0	0.0	62.50	I
6) 70P	0	0.0	62.50	I
7) 80P	0	0.0	62.50	I
8) 90P	2	25.00	87.50	I**********
9) 100P	1	12.50	100.00	I******

59. PRIVATE PHYSICIAN 59.

N	MEAN	SD	MEDIAN
131	4.18	3.39	2.63

	FREQ	PCT	CUMPCT	
1) 10-20P	57	43.51	43.51	I**********
2) 30P	8	6.11	49.62	I***
3) 40P	4	3.05	52.67	I**
4) 50P	9	6.87	59.54	I***
5) 60P	5	3.82	63.36	I**
6) 70P	2	1.53	64.89	I*
7) 80P	7	5.34	70.23	I***
8) 90P	11	8.40	78.63	I****
9) 100P	28	21.37	100.00	I**********

60. MINOR EMERGENCY CENTER 60.

N	MEAN	SD	MEDIAN
21	1.67	2.13	1.05

	FREQ	PCT	CUMPCT	
1) 10-20P	19	90.48	90.48	I**********
2) 30P	0	0.0	90.48	I
3) 40P	0	0.0	90.48	I
4) 50P	0	0.0	90.48	I
5) 60P	0	0.0	90.48	I
6) 70P	0	0.0	90.48	I
7) 80P	1	4.76	95.24	I**
8) 90P	0	0.0	95.24	I
9) 100P	1	4.76	100.00	I**

APPENDIX GG

BROOKE ARMY MEDICAL CENTER AND PRIVATE PHYSICIAN

USAGE BY SEX AND FREQUENCY

KEY

1/WK--Once per week

GT/WK--Greater than once per week

1/MN--Once per month

EOMN--Every other month

1/6M--Once every six months

1/Y--Once per year

BROOKE ARMY MEDICAL CENTER USAGE BY SEX AND FREQUENCY

55. BROOKE ARMY MEDICAL CENTER 55.

	10-20P	30P	40P	50P	60P	70P	80P	90P	100P	ROW TOTAL	
PCT	5.9	1.2	0.6	2.5	0.3	1.2	1.9	5.7	80.7	100.0	ALL DATA
FREQ	62	13	6	26	3	13	20	60	848	1051	
PCT	5.5	1.1	0.6	2.5	0.3	1.4	1.8	4.9	81.9	100.0	MALE
FREQ	48	10	5	22	3	12	16	43	719	878	
PCT	8.4	1.8	0.6	2.4	0.0	0.6	2.4	9.6	74.1	100.0	FEMALE
FREQ	14	3	1	4	0	1	4	16	123	166	
PCT	9.1	0.0	0.0	0.0	0.0	0.0	9.1	22.7	59.1	100.0	*1/WK
FREQ	2	0	0	0	0	0	2	5	13	22	
PCT	8.3	0.0	0.0	0.0	0.0	0.0	0.0	8.3	83.3	100.0	*GT/WK
FREQ	1	0	0	0	0	0	0	1	10	12	
PCT	3.9	1.6	0.8	0.8	0.0	0.8	2.4	7.1	82.7	100.0	*1/MN
FREQ	5	2	1	1	0	1	3	9	105	127	
PCT	3.2	0.8	0.8	3.2	1.2	1.2	2.4	3.6	83.5	100.0	*EQMN
FREQ	8	2	2	8	3	3	6	9	207	248	
PCT	5.9	1.2	0.4	2.8	0.0	1.2	1.4	4.8	82.2	100.0	*1/6M
FREQ	29	6	2	14	0	6	7	24	407	495	
PCT	11.9	2.4	0.8	2.4	0.0	0.8	1.6	7.1	73.0	100.0	*1/Y
FREQ	15	3	1	3	0	1	2	9	92	126	
COL TOTAL	5.9	1.2	0.6	2.5	0.3	1.2	1.9	5.6	80.8	100.0	
	184	39	18	78	9	37	60	176	2524	3125	

PRIVATE PHYSICIAN USAGE BY SEX AND FREQUENCY

59. PRIVATE PHYSICIAN 59.

	10-20P	30P	40P	50P	60P	70P	80P	90P	100P	ROW TOTAL	
PCT	43.5	6.1	3.1	6.9	3.8	1.5	5.3	8.4	21.4	100.0	ALL DATA
FREQ	57	8	4	9	5	2	7	11	28	131	
PCT	45.3	6.6	2.8	6.6	3.8	1.9	3.8	6.6	22.6	100.0	MALE
FREQ	48	7	3	7	4	2	4	7	24	106	
PCT	36.0	4.0	4.0	8.0	4.0	0.0	12.0	16.0	16.0	100.0	FEMALE
FREQ	9	1	1	2	1	0	3	4	4	25	
PCT	80.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	100.0	*1/UK
FREQ	4	0	0	0	0	0	0	1	0	5	
PCT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	*GT/UK
FREQ	0	0	0	0	0	0	0	0	0	0	
PCT	62.5	12.5	0.0	0.0	0.0	0.0	12.5	0.0	12.5	100.0	*1/MN
FREQ	5	1	0	0	0	0	1	0	1	8	
PCT	39.4	6.1	6.1	15.2	15.2	0.0	0.0	9.1	9.1	100.0	*FORM
FREQ	13	2	2	5	5	0	0	3	3	33	
PCT	49.1	7.5	1.9	5.7	0.0	1.9	3.8	11.3	18.9	100.0	*1/6M
FREQ	26	4	1	3	0	1	2	6	10	53	
PCT	26.9	0.0	0.0	3.8	0.0	3.8	15.4	3.8	46.2	100.0	*1/Y
FREQ	7	0	0	1	0	1	4	1	12	26	
COL TOTAL	43.7	5.9	2.8	7.0	3.9	1.6	5.4	8.5	21.2	100.0	
	170	23	11	27	15	6	21	33	82	387	

APPENDIX HH

BROOKE ARMY MEDICAL CENTER AND PRIVATE PHYSICIAN USAGE FOR TOP NINE ZIP CODES

KEY

ZIP Code #1--78209

ZIP Code #2--78218

ZIP Code #3--78239

ZIP Code #4--78233

ZIP Code #5--78217

ZIP Code #6--78219

ZIP Code #7--78216

ZIP Code #8--78213

ZIP Code #9--78227

BROOKE ARMY MEDICAL CENTER USAGE FOR TOP NINE ZIP CODES

57. BROOKE ARMY MEDICAL CENTER 57.

	10-20P	30P	40P	50P	60P	70P	80P	90P	100P	ROW TOTAL	
PCT	5.9	1.2	0.6	2.5	0.3	1.2	1.9	5.7	80.7	100.0	ALL DAT
FREQ	62	13	6	26	3	13	20	60	848	1051	
PCT	1.9	0.5	1.4	1.4	0.0	1.0	2.4	7.7	83.6	100.0	ZIP CODE 1
FREQ	4	1	3	3	0	2	5	16	173	207	
PCT	4.8	2.1	0.7	2.1	0.0	0.7	2.1	2.7	84.9	100.0	ZIP CODE 2
FREQ	7	3	1	3	0	1	3	4	124	146	
PCT	1.9	1.3	0.0	3.2	0.6	1.9	0.6	7.1	83.3	100.0	ZIP CODE 3
FREQ	3	2	0	5	1	3	1	11	130	156	
PCT	3.9	0.0	0.0	2.0	0.0	2.0	3.9	7.8	80.4	100.0	ZIP CODE 4
FREQ	2	0	0	1	0	1	2	4	41	51	
PCT	4.8	1.6	1.6	1.6	0.0	0.0	1.6	6.5	82.3	100.0	ZIP CODE 5
FREQ	3	1	1	1	0	0	1	4	51	62	
PCT	3.6	3.6	0.0	0.0	0.0	0.0	0.0	0.0	92.9	100.0	ZIP CODE 6
FREQ	1	1	0	0	0	0	0	0	26	28	
PCT	8.2	0.0	2.0	0.0	2.0	0.0	4.1	4.1	79.6	100.0	ZIP CODE 7
FREQ	4	0	1	0	1	0	2	2	39	49	
PCT	5.7	2.9	0.0	0.0	0.0	2.9	0.0	0.0	88.6	100.0	ZIP CODE 8
FREQ	2	1	0	0	0	1	0	0	31	35	
PCT	66.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.3	100.0	ZIP CODE 9
FREQ	2	0	0	0	0	0	0	0	1	3	
COL TOTAL	5.9	1.2	0.7	2.2	0.3	1.2	1.9	5.6	81.9	100.0	
	99	22	12	39	5	21	34	101	1464	1798	

PRIVATE PHYSICIAN USAGE FOR TOP NINE ZIP CODES

61. PRIVATE PHYSICIAN 61.

	10-20P	30P	40P	50P	60P	70P	80P	90P	100P	ROW TOTAL	
CT	43.5	6.1	3.1	6.9	3.8	1.5	5.3	8.4	21.4	100.0	ALL DAT
REQ	57	8	4	9	5	2	7	11	28	131	
CT	56.3	3.1	0.0	6.3	3.1	0.0	0.0	9.4	21.9	100.0	ZIP CODE 1
REQ	18	1	0	2	1	0	0	3	7	32	
CT	50.0	0.0	8.3	8.3	0.0	8.3	16.7	0.0	8.3	100.0	ZIP CODE 2
REQ	6	0	1	1	0	1	2	0	1	12	
CT	44.4	16.7	11.1	0.0	5.6	0.0	0.0	5.6	16.7	100.0	ZIP CODE 3
REQ	8	3	2	0	1	0	0	1	3	18	
CT	50.0	25.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	100.0	ZIP CODE 4
REQ	2	1	0	0	0	0	0	0	1	4	
CT	66.7	0.0	16.7	0.0	16.7	0.0	0.0	0.0	0.0	100.0	ZIP CODE 5
REQ	4	0	1	0	1	0	0	0	0	6	
CT	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	50.0	100.0	ZIP CODE 6
REQ	0	0	0	0	1	0	0	0	1	2	
CT	44.4	0.0	0.0	0.0	0.0	0.0	0.0	22.2	33.3	100.0	ZIP CODE 7
REQ	4	0	0	0	0	0	0	2	3	9	
CT	0.0	0.0	0.0	50.0	0.0	0.0	0.0	50.0	0.0	100.0	ZIP CODE 8
REQ	0	0	0	1	0	0	0	1	0	2	
CT	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	ZIP CODE 9
REQ	0	0	0	0	0	0	1	0	0	1	
COL	45.6	6.0	3.7	6.0	4.1	1.4	4.6	8.3	20.3	100.0	
TOTAL	99	13	8	13	9	3	10	18	44	217	

APPENDIX II

BROOKE ARMY MEDICAL CENTER AND PRIVATE PHYSICIAN USAGE BY AGE GROUPINGS

KEY

Age Group #1--37-44 Years

Age Group #2--45-52 Years

Age Group #3--53-60 Years

Age Group #4--61-68 Years

Age Group #5--69-76 Years

Age Group #6--77-84 Years

Age Group #7--85-92 Years

Age Group #8--93+ Years

BROOKE ARMY MEDICAL CENTER USAGE BY AGE GROUPINGS

55. BROOKE ARMY MEDICAL CENTER 55.

	10-20P	30P	40P	50P	60P	70P	80P	90P	100P	ROW TOTAL	
PCT	5.9	1.2	0.6	2.5	0.3	1.2	1.9	5.7	80.7	100.0	ALL DATA
FREQ	62	13	6	26	3	13	20	60	848	1051	
PCT	9.1	0.0	0.0	4.5	0.0	4.5	4.5	4.5	72.7	100.0	*AGE GRP 1
FREQ	2	0	0	1	0	1	1	1	16	22	
PCT	6.6	3.3	0.0	3.3	0.0	2.2	3.3	9.9	71.4	100.0	*AGE GRP 2
FREQ	6	3	0	3	0	2	3	9	65	91	
PCT	6.7	1.9	0.0	2.4	0.0	0.0	2.4	5.3	81.3	100.0	*AGE GRP 3
FREQ	14	4	0	5	0	0	5	11	170	209	
PCT	5.2	0.5	0.5	2.5	0.3	1.6	1.6	6.0	81.6	100.0	*AGE GRP 4
FREQ	19	2	2	9	1	6	6	22	298	365	
PCT	4.9	1.1	0.4	2.7	0.4	0.8	1.1	5.3	83.3	100.0	*AGE GRP 5
FREQ	13	3	1	7	1	2	3	14	219	263	
PCT	7.4	0.0	4.4	0.0	1.5	2.9	1.5	2.9	79.4	100.0	*AGE GRP 6
FREQ	5	0	3	0	1	2	1	2	54	68	
PCT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	91.7	100.0	*AGE GRP 7
FREQ	0	0	0	0	0	0	0	1	11	12	
PCT	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	*AGE GRP 8
FREQ	1	0	0	0	0	0	0	0	0	1	
COL TOTAL	5.9 122	1.2 25	0.6 12	2.4 51	0.3 6	1.2 26	1.9 39	5.8 120	80.7 1681	100.0 2082	

PRIVATE PHYSICIAN USAGE BY AGE GROUPINGS

59. PRIVATE PHYSICIAN 59.

	10-20P	30P	40P	50P	60P	70P	80P	90P	100P	ROW TOTAL	
PCT	43.5	6.1	3.1	6.9	3.8	1.5	5.3	8.4	21.4	100.0	ALL DATA
FREQ	57	8	4	9	5	2	7	11	28	131	
PCT	50.0	25.0	0.0	0.0	0.0	0.0	0.0	25.0	0.0	100.0	AGE GRP 1
FREQ	2	1	0	0	0	0	0	1	0	4	
PCT	45.5	9.1	0.0	0.0	0.0	9.1	0.0	9.1	27.3	100.0	AGE GRP 2
FREQ	5	1	0	0	0	1	0	1	3	11	
PCT	31.8	4.5	0.0	4.5	9.1	4.5	9.1	4.5	31.8	100.0	AGE GRP 3
FREQ	7	1	0	1	2	1	2	1	7	22	
PCT	48.8	9.3	7.0	11.6	0.0	0.0	2.3	7.0	14.0	100.0	AGE GRP 4
FREQ	21	4	3	5	0	0	1	3	6	43	
PCT	45.7	0.0	0.0	8.6	2.9	0.0	8.6	8.6	25.7	100.0	AGE GRP 5
FREQ	16	0	0	3	1	0	3	3	9	35	
PCT	30.8	7.7	7.7	0.0	15.4	0.0	0.0	15.4	23.1	100.0	AGE GRP 6
FREQ	4	1	1	0	2	0	0	2	3	13	
PCT	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	AGE GRP 7
FREQ	1	0	0	0	0	0	0	0	0	1	
PCT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	AGE GRP 8
FREQ	0	0	0	0	0	0	0	0	0	0	
COL TOTAL	43.5 113	6.2 16	3.1 8	6.9 18	3.8 10	1.5 4	5.0 13	8.5 22	21.5 56	100.0 260	

APPENDIX JJ

BREAKDOWN OF BROOKE ARMY MEDICAL CENTER AND PRIVATE PHYSICIAN USAGE BY RANK GROUPINGS

BROOKE ARMY MEDICAL CENTER USAGE BY RANK

49. RANK 49.

N	MEAN	SD	MEDIAN
604	6.03	2.52	6.78

	FREQ	PCT	CUMPCT	
1) E1-4	1	0.17	0.17	I
2) 5-6	37	6.13	6.29	I***
3) 7-8	139	23.01	29.30	I**********
4) 9	36	5.96	35.26	I***
5) W234	51	8.44	43.71	I****
6) 01-3	23	3.81	47.52	I**
7) O-4	53	8.77	56.29	I****
8) O-5	134	22.19	78.48	I**********
9) O-6+	130	21.52	100.00	I**********

PRIVATE PHYSICIAN USAGE BY RANK

49. RANK 49.

N	MEAN	SD	MEDIAN
35	6.89	2.42	7.86

	FREQ	PCT	CUMPCT	
1) E1-4	0	0.0	0.0	I
2) 5-6	2	5.71	5.71	I***
3) 7-8	5	14.29	20.00	I*******
4) 9	0	0.0	20.00	I
5) W234	2	5.71	25.71	I***
6) 01-3	3	8.57	34.29	I****
7) O-4	3	8.57	42.86	I****
8) O-5	7	20.00	62.86	I**********
9) O-6+	13	37.14	100.00	I********************

APPENDIX KK

CHI-SQUARE TEST FOR USAGE BY RANK AND HOSPITALIZATION

CHI-SQUARE TEST FOR USAGE BY RANK AND HOSPITALIZATION

Hospitalization	Rank of 06 or Above	All Other Ranks
Civilian Source (HMO, Civilian Hospital, Private Physician, Minor Emergicenter, & Other)	36 (21%)	62 (7.6%)
Federal Source (BAMC, Wilford Hall, and Audie Murphy)	135 (79%)	751 (93.4%)
TOTAL	171	813

EXPECTED

17.03	80.97	98
153.97	732.03	886
171.00	813.00	984

$x^2 = 21.13 + 2.34 + 4.44 + .49$

$x^2 = 28.4$

Significant at the .005 level: $p \leq .005$

APPENDIX LL

OUTPATIENT SERVICE USAGE PATTERNS--

TEST FOR SIGNIFICANCE

OUTPATIENT SERVICE USAGE PATTERNS--TEST FOR SIGNIFICANCE

Service	Number of Respondents	Projected Population Size	Level of Significance
Top Five Admitting Services			
Internal Medicine	544	4,759	<.05
General Surgery	148	1,295	N/S (>.20)
Gastro-enterology	157	1,373	N/S (>.20)
Cardiology	262	2,292	<.1
Orthopedics	136	1,190	N/S (>.20)
Top Ten Services by Outpatient Visits			
Physical Therapy	158	1,382	N/S (>.20)
Internal Medicine	544	4,759	<.05
Emergency Room	563	4,925	<.01
Dermatology	447	3,910	<.05
Optometry	429	3,753	<.05
Gynecology	132	1,155	N/S (>.20)
Occupational Therapy	17	149	N/S (>.60)
Cardiology	262	2,292	<.01
Allergy	83	726	N/S (>.60)
Oncology	74	647	N/S (>.60)

N/S = Not significant

APPENDIX MM

PRIVATE PHYSICIAN USAGE FOR INTERNAL MEDICINE

BY MEMBERS OF ZIP CODE 78201

PRIVATE PHYSICIAN USAGE FOR INTERNAL MEDICINE BY MEMBERS OF ZIP CODE 78201

36 INTERNAL MEDICINE 36

	VA	BAMC	CI HOSP	UNIV	UNO	PRIPHY	HEC	OTHER	ROW TOTAL	
PCT	0.4	93.4	0.2	2.0	0.0	3.9	0.0	0.2	100.0	ALL DAT.
FREQ	2	508	1	11	0	21	0	1	544	
PCT	0.0	87.4	0.0	1.9	0.0	10.7	0.0	0.0	100.0	*ZCA 10
FREQ	0	90	0	2	0	11	0	0	103	
PCT	0.0	89.7	3.4	6.9	0.0	0.0	0.0	0.0	100.0	ZCA 11
FREQ	0	26	1	2	0	0	0	0	29	
PCT	0.0	83.3	0.0	16.7	0.0	0.0	0.0	0.0	100.0	ZCA 12
FREQ	0	20	0	4	0	0	0	0	24	
PCT	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	ZCA13
FREQ	0	3	0	0	0	0	0	0	3	
PCT	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	ZCA 14
FREQ	0	4	0	0	0	0	0	0	4	
PCT	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	ZCA 15
FREQ	0	1	0	0	0	0	0	0	1	
PCT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ZCA 16
FREQ	0	0	0	0	0	0	0	0	0	
COL TOTAL	0.3	92.1	0.3	2.7	0.0	4.5	0.0	0.1	100.0	
	2	652	2	19	0	32	0	1	708	

*ZIP Code 78201

APPENDIX NN

PREFERENCE OF CARE AT BROOKE ARMY MEDICAL CENTER OUTPATIENT SERVICES BY RESPONDENTS SEEKING CARE FROM PRIVATE PHYSICIANS

PREFERENCE OF CARE AT BROOKE ARMY MEDICAL CENTER OUTPATIENT SERVICES BY RESPONDENTS SEEKING CARE FROM PRIVATE PHYSICIANS

43. WILL CONSIDER USING SERVICES 43.

	YES	NO	ROW TOTAL		
PCT	94.2	5.8	100.0		
				ALL GROUP	
FREQ	1019	63	1082		
PCT	94.3	5.7	100.0		
				10-20%	PRIVATE PHYSICIAN
FREQ	50	3	53		
PCT	85.7	14.3	100.0		
				30%	PRIVATE PHYSICIAN
FREQ	6	1	7		
PCT	80.0	20.0	100.0		
				40%	PRIVATE PHYSICIAN
FREQ	4	1	5		
PCT	55.6	44.4	100.0		
				50%	PRIVATE PHYSICIAN
FREQ	5	4	9		
PCT	50.0	50.0	100.0		
				60%	PRIVATE PHYSICIAN
FREQ	2	2	4		
PCT	50.0	50.0	100.0		
				70%	PRIVATE PHYSICIAN
FREQ	1	1	2		
PCT	42.9	57.1	100.0		
				80%	PRIVATE PHYSICIAN
FREQ	3	4	7		
PCT	50.0	50.0	100.0		
				90%	PRIVATE PHYSICIAN
FREQ	5	5	10		
PCT	60.9	39.1	100.0		
				100%	PRIVATE PHYSICIAN
FREQ	14	9	23		
COL TOTAL	92.3	7.7	100.0		
	1109	93	1202		

APPENDIX OO

PAYMENT PREFERENCE OF RESPONDENTS WHO SEEK CIVILIAN CARE ON AN INPATIENT AND AN OUTPATIENT BASIS

9. MEDICARE 9.

N	MEAN	SD	MEDIAN
155	1.00	0.0	1.00

	FREQ	PCT	CUMPCT	
1) YES	155	100.00	100.00	!**********
2) NO	0	0.0	100.00	!

10. MEDICAID 10.

N	MEAN	SD	MEDIAN
19	1.05	0.23	1.00

	FREQ	PCT	CUMPCT	
1) YES	18	94.74	94.74	!**********
2) NO	1	5.26	100.00	!***

11. BX/BS 11.

N	MEAN	SD	MEDIAN
32	1.03	0.18	1.00

	FREQ	PCT	CUMPCT	
1) YES	31	96.88	96.88	!**********
2) NO	1	3.13	100.00	!**

12. PRIINS 12.

N	MEAN	SD	MEDIAN
136	1.01	0.09	1.00

	FREQ	PCT	CUMPCT	
1) YES	135	99.26	99.26	!**********
2) NO	1	0.74	100.00	!

13. CHAMPUS 13.

N	MEAN	SD	MEDIAN
81	1.00	0.0	1.00

	FREQ	PCT	CUMPCT	
1) YES	81	100.00	100.00	!**********
2) NO	0	0.0	100.00	!

14. POCKET 14.

N	MEAN	SD	MEDIAN
226	1.00	0.07	1.00

	FREQ	PCT	CUMPCT	
1) YES	225	99.56	99.56	!**********
2) NO	1	0.44	100.00	!

KEY: BX/BS--Blue Cross/Blue Shield
PRI/INS--Private Insurance
POCKET--Pay Out of Pocket

APPENDIX PP

CHI-SQUARE TEST FOR POTENTIAL DEMAND BY UNFAMILIARITY WITH PROGRAMS AND ZIP CODE

CHI-SQUARE TEST FOR POTENTIAL DEMAND BY UNFAMILIARITY WITH PROGRAMS AND ZIP CODE

Program	Percent Unfamiliarity		Chi-Square Level of Significance
	ZIP Code #1	ZIP Codes #2-8	
Newcomer Orientation	64	72	N/S
Diabetic Diets	54	38	<.01
Weight Reduction	48	33	<.005
Alcohol/Drug Abuse	54	45	N/S
Men's & Women's Health Issues	82	71	<.05
Adult Support Group	80	74	N/S
Low Salt Diets	50	36	<.0005
Arthritis Group	60	61	N/S
Stop Smoking Clinic	64	58	N/S
Stress Group	75	66	<.1
Oncology Support Group	69	59	<.1
Cholesterol Diets	57	44	<.025

N/S = Not significant

SELECTED BIBLIOGRAPHY

SELECTED BIBLIOGRAPHY

Books

Block, Lee F. Marketing for Hospitals in Hard Times. Chicago: Teach 'Em, Inc., 1981.

Cooper, Philip D., ed. Health Care Marketing. Germantown, Md.: Aspen Systems Corporation, 1979.

Cooper, Philip D., and Robinson, Larry M. Health Care Marketing Management. Rockville, Md.: Aspen Systems Corporation, 1982.

Drucker, Peter F. Management: Tasks, Responsibilities, Practices. New York: Harper & Row, Inc., Publishers, 1973.

Kotler, Philip. Marketing for Nonprofit Organizations. 2nd ed. Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1982.

McMillan, Norman H. Marketing Your Hospital: A Strategy for Survival. Chicago: American Hospital Association, 1981.

MacStravic, Robin E. Marketing by Objectives for Hospitals. Germantown, Md.: Aspen Systems Corporation, 1980.

Maryland Hospital Education Institute. Hospital Sponsored Ambulatory Care. Chicago: American Hospital Association, 1980.

Rice, James A., and Creel, George H. Market-Based Demand Forecasting for Hospital Inpatient Services. Chicago: American Hospital Publishing, Inc., 1985.

Roemer, Milton I. Ambulatory Health Services in America: Past, Present and Future. Rockville, Md.: Aspen Systems Corporation, 1981.

Rowland, Howard S., and Rowland, Beatrice L. Hospital Administration Handbook. Rockville, Md.: Aspen Systems Corporation, 1984.

Rubright, Robert, and MacDonald, Dan. Marketing Health and Human Services. Rockville, Md.: Aspen Systems Corporation, 1981.

Articles and Periodicals

American Hospital Association. "How Hospitals 'Market Position' Themselves to Stimulate Patient Flow." Hospital Topics 61 (July-August 1983): 8-9.

Berger, Philip K., and Guiltinan, Joseph P. "A Determinant Attribute Approach for Developing Primary Care Marketing Strategies." Journal of Health Care Marketing 2, no. 1 (1982): 15-25.

Berkowitz, Eric N. "Marketing Ambulatory Care." Journal of Ambulatory Care Management 4 (August 1981): 15-26.

Berkowitz, Eric N., and Flexner, William A. "Health Care Consumers: A Market Segmentation Approach Applied to Hospital Planning." In 1979 Northeast AIDS Proceedings, pp. 16-23. Edited by Lewis Cerreng. Boston: N.p., 1979.

Black, Jeanne T. "Role of Ambulatory Care in Developing a Strategic Plan." The Journal of Ambulatory Care Management 6 (Spring 1983): 1-15.

Brown, S. W. "Candid Observations on the Status of Health Services Marketing." Journal of Health Care Marketing 3 (Summer 1983): 45-52.

Burns, Linda A. "Trends and Initiative in Hospital Ambulatory Care." American Journal of Hospital Pharmacy 39 (May 1982): 799-805.

Carr, Carol, and Binder, William. "Health Care Marketing Gains Popularity as a Needed Activity for Hospitals." Federation of American Hospitals Review 6 (March-April 1973): 73-74.

Carroll, Norman V., and Gagon, Jean Paul. "Identifying Consumer Segments in Health Services Markets: An Application of Conjoint and Cluster Analyses to the Ambulatory Care Pharmacy Market." Journal of Health Care Marketing 3 (Summer 1983): 22-34.

Clarke, Roberta N. "Marketing Research: When, Why and How." Health Care Management Review 7 (Winter 1982): 29-34.

Clarke, Roberta N., and Shyavitz, Linda. "Marketing Information and Marketing Research--Valuable Tools for Managers." Health Care Management Review 6 (Winter 1981): 73-77.

Coale, Jack. "Hospital Marketing: The Survival Option." Health Services Manager 16 (Spring 1983): 5-6.

Cooper, Philip D. "Health Care Marketing: Progress and Prospects, A Panel Discussion." Journal of Health Care Marketing 1 (Spring 1981): 42-51.

Cushman, Aaron D. "Hospital Marketing in the 80's." Hospital Topics 61 (July-August 1983): 11-12.

"A Do-It-Yourself Audit." Profiles in Hospital Marketing 1 (Winter 1981): 42-48.

Doyle, B. J., and Ware, J. E., Jr. "Physician Conduct and Other Factors That Affect Consumer Satisfaction with Medical Care." Journal of Medical Education 52 (1977): 793-801.

Drachman, David A. "Health Care Marketing Minicase: A Community Marketing Survey of a Proposed Ambulatory Care Facility." Journal of Health Care Marketing 3 (Spring 1983): 51-55.

Eknoian, Terri-Ann, and Stafstrom, Anne. "Marketing Your Way to a Successful Center." Ambulatory Care 11 (November 1984): 9-13.

Faraci, Joseph. "Faulty Marketing Hurts Ambulatory Plans." Modern Healthcare 14 (February 1984): 62.

Faraci, Joseph. "M.D.s Oppose Peers' Advertising, More Accepting of Hospitals' Efforts." Modern Healthcare 16 (July 1983): 96.

Friedman, Bernard; Manheim, Larry; and Melczer, Andrew. "Hospital Participation in Competitive Markets for Ambulatory Care: Implications for Reimbursement Policy." Advances in Health Economics and Health Services Research 4 (1983): 83-127.

Goldsmith, Jeff C. "Competition: How Will It Affect Hospitals?" Hospital Financial Management 35 (November 1981): 16-28.

Goldsmith, Jeff C. "Hospital Marketing Program Must Involve Physicians, Advocate Says." Federation of American Hospitals Review 6 (March-April 1973): 51-56.

Gray, Lois C. "Consumer Satisfaction with Physician Provided Services: A Panel Study." Social Science and Medicine 14A (1980): 65-73.

Gregory, Doug, and Klegon, Doug. "The Value of Strategic Marketing to the Hospital." Healthcare Financial Management 13 (December 1983): 16-22.

Hammer, Joan. "How to Promote and Advertise a New or Existing Clinic." Health Marketing Quarterly 1 (Winter 1983): 61-67.

Hinz, Christine A. "Good Marketing Is Consistent with Good Medical Care: Seminar." American Medical News 6 (August 1983): 20-21.

Hymes, H. "A Renaissance for Human Services: Marketing for Survival." Alcohol Health and Research World, Winter, 1982-83, pp. 22-27.

Jackson, Bill, and Jensen, Joyce. "Majority of Consumers Support Advertising of Hospital Services." Modern Healthcare 14 (April 1984): 93-94, 96-97.

Kaiser, Leland R. "Survival Strategies for Not-for-Profit Hospitals." Hospital Progress 64 (December 1983): 40-46.

Keith, Jon G. "Marketing Health Care: What the Recent Literature Is Telling Us." Hospital & Health Services Administration 26 (Special Issue No.2, 1981): 66-82.

Kelman, Howard R., and Lane, Dovorhz S. "Use of Hospital Emergency Room in Relation to Use of Private Physician." American Journal of Public Health 66 (December 1976): 1189-91.

Kent, Jesse E. "1983: The Year for Marketing." Fund Raising Management 14, no. 3 (1983): 25-27.

Klegon, Douglas A.; Kingstrom, Paul O.; and Gregory, Douglas D. "Ambulatory Health Care Centers: Image and Preference among Consumers." Journal of Ambulatory Care Management 5 (November 1982): 16-23.

Lachner, Bernard. "Hospital Marketing Is a Survival Strategy, Industry Leader Believes." Federation of American Hospitals Review 15 (March-April 19820: 59-64.

Lancaster, Wade; McIlwain, Thomas; and Lancaster, Jeanette. "Health Marketing: Implications for Health Promotion." Family and Community Health 7 (November 1983): 41-51.

Levitan, Mark S. "Let Ethical Approach Be Guiding Force in Marketing, Teaching Hospital Head Says." Federation of American Hospitals Review 6 (March-April 1973): 66-70.

McMurry, P. "Marketing: Simple Techniques Work Best, Expert Says." Hospitals 56 (16 March 1982): 31-32.

MacStravic, Rubin S. "Macro-Marketing in Health Care." Hospital & Health Services Administration 28 (May-June 1983): 54.

Mages, Patrick M. "Marketing Medical Services: Hot, New, Misunderstood Topic in Health Care Delivery." Group Practice Journal 31 (April 1982): 14-20.

"Management Rounds: Planning and Development." Hospitals 55 (16 December 1981): 39.

"Marketing, Strategic Planning: Tools for the Future of the Hospital Industry." Federation of American Hospitals Review 15 (March-April 1982): 33-43.

Miseveth, Paul A. "Marketing Ambulatory Care." Hospital Progress 59 (March 1978): 58-61, 80.

Neuhaus, Evelyn R. "A Method for Determining the Marketing Feasibility of a Satellite Clinic." Journal of Health Care Marketing 2, no. 1 (1982): 31-38.

Pitts, Robert E. "Conducting a Successful Survey." Health Services Manager 13 (March 1980): 6-7.

Pitts, Robert E. "Need Analysis in Health Care Facilities." Health Services Manager 13 (February 1981): 8-10.

Reese, Richard M.; Stanton, Wilbur W.; and Daley, James M. "Identifying Market Segments within a Health Care Delivery System: Two Stage Methodology." Journal of Health Care Marketing 2 (Summer 1982): 10-23.

Rosenstock, Irving M. "Why People Use Health Services." Milbank Memorial Fund Quarterly 44 (1966): 94-127.

Sherlock, John F. "Hospital Marketing--Questions to Include in the Marketing Audit." Fund Raising Management 14, no. 6 (1983): 72-73.

Smith, Paul. "Test Will Make Hospital Health Care Overseer." Army Times 45 (1985): 23.

Stratmann, William C.; Black, James A.; Brown, Stephen P.; and Rozzi, Marshall V. "A Study of Consumer Attitudes about Health Care: The Control, Cost and Financing of Health Services." Medical Care 13 (August 1975): 659-68.

Thompson, Gene. "Marketing and Its Reliance on Data." Topics in Health Record Management 3, no. 1 (1982): 77-83.

Tucker, Stephen L. "Marketing Research Tools for Hospital Management." Texas Hospitals 35 (March 1980): 20-22.

Velle, Susan V. "Market Strategy." Hospital Forum 26 (November-December 1983): 42-45.

Wind, Y., and Spitz, L. K. "Analytical Approach to Marketing Decisions in Health Care Organizations." Operations Research 24 (1976): 973-90.

Wortzel, Lawrence H. "The Behavior of the Health Care consumer: A Selected Review." In Advances in Consumer Research, pp. 295-301. Cincinnati: Association for Consumer Research, 1975.

Other Sources

Arthur Anderson and Company. "Health Care in the 1990s: Trends and Strategies." Course presented by the American College of Hospital Administrators, San Antonio, Texas, November 3, 1984.

Briefing material used during visit by Director, Office of CHAMPUS, Denver, Colorado, 1985.

Brooke Army Medical Center. Medical Summary Report for the Period December, 1984-March, 1985. Fort Sam Houston, Texas.

Brooke Army Medical Center. Comptroller Division. Uniform Chart of Accounts, Fiscal years 1984-1985. Fort Sam Houston, Texas.

Buker, Robert H., BG, MC, Commanding General, Brooke Army Medical Center, Fort Sam Houston, Texas. Briefing Notes, 1985.

CHAMPUS. Health Care Summary Report for the Period July 1, 1983-June 30, 1984. No. HAD 85-007. Denver, Colorado, 1985.

El Camino Real Health Service Agency. Health Systems Plan for the Camino Real Health Service Area, 1981. San Antonio, Texas.

San Antonio Planning Department. The Target '90 Commission Report. San Antonio, Tex.: Van Steenberg Enterprises, Inc., July, 1984.

San Antonio Planning Department. Data Management Division. Population Forecasts for Bexar County Census Tracts, 1985 through 2005. San Antonio, Tex.: San Antonio Planning Department, May, 1984.